HAGOOD
ENGINEERING ASSOCIATES
Registration No. F-12709

APPLICATION
for
MODIFICATION TO A PREVIOUSLY APPROVED WATER POLLUTION ABATEMENT PLAN
and
NEW SEWAGE COLLECTION SYSTEM

FOR

EAGLES NEST 3

3259 EAGLES NEST STREET
ROUND ROCK, TEXAS 78665

APPLICANT:
CHANDLER CREEK PARCEL J&K LP
260 E. BAKER STREET, STE. 100
COSTA MESA, CA 92626

SUBMITTED TO:
TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
REGION 11 OFFICE
12100 PARK 35 CIRCLE, BLDG A.
AUSTIN, TEXAS 78753

APRIL 2023

EDWARDS AQUIFER APPLICATION COVER PAGE

TCEQ-20705

Texas Commission on Environmental Quality

Edwards Aquifer Application Cover Page

Our Review of Your Application

The Edwards Aquifer Program staff conducts an administrative and technical review of all applications. The turnaround time for administrative review can be up to 30 days as outlined in 30 TAC 213.4(e). Generally administrative completeness is determined during the intake meeting or within a few days of receipt. The turnaround time for technical review of an administratively complete Edwards Aquifer application is 90 days as outlined in 30 TAC 213.4(e). Please know that the review and approval time is directly impacted by the quality and completeness of the initial application that is received. In order to conduct a timely review, it is imperative that the information provided in an Edwards Aquifer application include final plans, be accurate, complete, and in compliance with 30 TAC 213.

Administrative Review

1. Edwards Aquifer applications must be deemed administratively complete before a technical review can begin. To be considered administratively complete, the application must contain completed forms and attachments, provide the requested information, and meet all the site plan requirements. The submitted application and plan sheets should be final plans. Please submit one full-size set of plan sheets with the original application, and half-size sets with the additional copies.

   To ensure that all applicable documents are included in the application, the program has developed tools to guide you and web pages to provide all forms, checklists, and guidance. Please visit the below website for assistance: http://www.tceq.texas.gov/field/eapp.

2. This Edwards Aquifer Application Cover Page form (certified by the applicant or agent) must be included in the application and brought to the administrative review meeting.

3. Administrative reviews are scheduled with program staff who will conduct the review. Applicants or their authorized agent should call the appropriate regional office, according to the county in which the project is located, to schedule a review. The average meeting time is one hour.

4. In the meeting, the application is examined for administrative completeness. Deficiencies will be noted by staff and emailed or faxed to the applicant and authorized agent at the end of the meeting, or shortly after. Administrative deficiencies will cause the application to be deemed incomplete and returned.

   An appointment should be made to resubmit the application. The application is re-examined to ensure all deficiencies are resolved. The application will only be deemed administratively complete when all administrative deficiencies are addressed.

5. If an application is received by mail, courier service, or otherwise submitted without a review meeting, the administrative review will be conducted within 30 days. The applicant and agent will be contacted with the results of the administrative review. If the application is found to be administratively incomplete, it can be retrieved from the regional office or returned by regular mail. If returned by mail, the regional office may require arrangements for return shipping.

6. If the geologic assessment was completed before October 1, 2004 and the site contains "possibly sensitive" features, the assessment must be updated in accordance with the *Instructions to Geologists* (TCEQ-0585 Instructions).

Technical Review

1. When an application is deemed administratively complete, the technical review period begins. The regional office will distribute copies of the application to the identified affected city, county, and groundwater conservation district whose jurisdiction includes the subject site. These entities and the public have 30 days to provide comments on the application to the regional office. All comments received are reviewed by TCEQ.

2. A site assessment is usually conducted as part of the technical review, to evaluate the geologic assessment and observe existing site conditions. The site must be accessible to our staff. The site boundaries should be

clearly marked, features identified in the geologic assessment should be flagged, roadways marked and the alignment of the Sewage Collection System and manholes should be staked at the time the application is submitted. If the site is not marked the application may be returned.

3. We evaluate the application for technical completeness and contact the applicant and agent via Notice of Deficiency (NOD) to request additional information and identify technical deficiencies. There are two deficiency response periods available to the applicant. There are 14 days to resolve deficiencies noted in the first NOD. If a second NOD is issued, there is an additional 14 days to resolve deficiencies. If the response to the second notice is not received, is incomplete or inadequate, or provides new information that is incomplete or inadequate, the application must be withdrawn or if not withdrawn the application will be denied and the application fee will be forfeited.
4. The program has 90 calendar days to complete the technical review of the application. If the application is technically adequate, such that it complies with the Edwards Aquifer rules, and is protective of the Edwards Aquifer during and after construction, an approval letter will be issued. Construction or other regulated activity may not begin until an approval is issued.

Mid-Review Modifications

It is important to have final site plans prior to beginning the permitting process with TCEQ to avoid delays.

Occasionally, circumstances arise where you may have significant design and/or site plan changes after your Edwards Aquifer application has been deemed administratively complete by TCEQ. This is considered a "Mid-Review Modification". Mid-Review Modifications may require redistribution of an application that includes the proposed modifications for public comment.

If you are proposing a Mid-Review Modification, two options are available to you:

- You can withdraw your application, and your fees will be refunded or credited for a resubmittal.
- TCEQ can continue the technical review of the application as it was submitted, and a modification application can be submitted at a later time.

If the application is withdrawn, the resubmitted application will be subject to the administrative and technical review processes and will be treated as a new application. The application will be redistributed to the effected jurisdictions.

Please contact the regional office if you have questions. If your project is located in Williamson, Travis, or Hays County, contact TCEQ's Austin Regional Office at 512-339-2929. If your project is in Comal, Bexar, Medina, Uvalde, or Kinney County, contact TCEQ's San Antonio Regional Office at 210-490-3096

Please fill out all required fields below and submit with your application.

1. Regulated Entity Name: EAGLES NEST 3						**2. Regulated Entity No.:**			
3. Customer Name: CHANDLER CREEK PARCEL J&K, LP						**4. Customer No.: 604552380**			
5. Project Type: **(Please circle/check one)**	New		Modification XX			Extension		Exception	
6. Plan Type: **(Please circle/check one)**	WPAP XX	CZP	SCS XX	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: **(Please circle/check one)**	Residential		Non-residential XX			**8. Site (acres):**		45.26	
9. Application Fee:	$8,650.00		**10. Permanent BMP(s):**			SED-FIL/WET VAULT			
11. SCS (Linear Ft.):	873		**12. AST/UST (No. Tanks):**						
13. County:	WILCO		**14. Watershed:**			CHANDLER BRANCH			

Application Distribution

Instructions: Use the table below to determine the number of applications required. One original and one copy of the application, plus additional copies (as needed) for each affected incorporated city, county, and groundwater conservation district are required. Linear projects or large projects, which cross into multiple jurisdictions, can require additional copies. Refer to the "Texas Groundwater Conservation Districts within the EAPP Boundaries" map found at:

http://www.tceq.texas.gov/assets/public/compliance/field_ops/eapp/EAPP%20GWCD%20map.pdf

For more detailed boundaries, please contact the conservation district directly.

Austin Region			
County:	**Hays**	**Travis**	**Williamson**
Original (1 req.)	___	___	_X_
Region (1 req.)	___	___	_X_
County(ies)	___	___	_X_
Groundwater Conservation District(s)	___Edwards Aquifer Authority ___Barton Springs/ Edwards Aquifer ___Hays Trinity ___Plum Creek	___Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	___Austin ___Buda ___Dripping Springs ___Kyle ___Mountain City ___San Marcos ___Wimberley ___Woodcreek	___Austin ___Bee Cave ___Pflugerville ___Rollingwood ___Round Rock ___Sunset Valley ___West Lake Hills	___Austin ___Cedar Park ___Florence ___Georgetown ___Jerrell ___Leander ___Liberty Hill ___Pflugerville _X_Round Rock

San Antonio Region					
County:	**Bexar**	**Comal**	**Kinney**	**Medina**	**Uvalde**
Original (1 req.)	___	___	___	___	___
Region (1 req.)	___	___	___	___	___
County(ies)	___	___	___	___	___
Groundwater Conservation District(s)	___ Edwards Aquifer Authority ___Trinity-Glen Rose	___Edwards Aquifer Authority	___Kinney	___EAA ___Medina	___EAA ___Uvalde
City(ies) Jurisdiction	___Castle Hills ___Fair Oaks Ranch ___Helotes ___Hill Country Village ___Hollywood Park ___San Antonio (SAWS) ___Shavano Park	___Bulverde ___Fair Oaks Ranch ___Garden Ridge ___New Braunfels ___Schertz	NA	___San Antonio ETJ (SAWS)	NA

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review. TERRY HAGOOD, P.E.
Print Name of Customer/Authorized Agent  04/30/2023
Signature of Customer/Authorized Agent Date

FOR TCEQ INTERNAL USE ONLY				
Date(s)Reviewed:		Date Administratively Complete:		
Received From:		Correct Number of Copies:		
Received By:		Distribution Date:		
EAPP File Number:		Complex:		
Admin. Review(s) (No.):		No. AR Rounds:		
Delinquent Fees (Y/N):		Review Time Spent:		
Lat./Long. Verified:		SOS Customer Verification:		
Agent Authorization Complete/Notarized (Y/N):		Fee Check:	Payable to TCEQ (Y/N):	
Core Data Form Complete (Y/N):			Signed (Y/N):	
Core Data Form Incomplete Nos.:			Less than 90 days old (Y/N):	

GENERAL INFORMATION

TCEQ-0587

General Information Form

Texas Commission on Environmental Quality

For Regulated Activities on the Edwards Aquifer Recharge and Transition Zones and Relating to 30 TAC §213.4(b) & §213.5(b)(2)(A), (B) Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **General Information Form** is hereby submitted for TCEQ review. The application was prepared by:

Print Name of Customer/Agent: TERRY HAGOOD

Date: 04/30/2023

Signature of Customer/Agent:

Project Information

1. Regulated Entity Name: EAGLES NEST 3
2. County: WILLIAMSON
3. Stream Basin: CHANDLER BRANCH
4. Groundwater Conservation District (If applicable): n/a
5. Edwards Aquifer Zone:

   ☒ Recharge Zone
   ☐ Transition Zone

6. Plan Type:

   ☒ WPAP
   ☒ SCS
   ☒ Modification
   ☐ AST
   ☐ UST
   ☐ Exception Request

7. Customer (Applicant):

   Contact Person: KEN WHEELER
   Entity: CHANDLER CREEK PARCEL J&K, LP
   Mailing Address: 206 E BAKER STREET, STE. 100
   City, State: COSTA MESA, CA Zip: 92626
   Telephone: 714-824-6000 FAX: 714-824-6001
   Email Address: KEN@BURKEGROUP.NET

8. Agent/Representative (If any):

   Contact Person: TERRY HAGOOD
   Entity: HAGOOD ENGINEERING ASSOCIATES, INC.
   Mailing Address: 900 E. MAIN STREET
   City, State: ROUND ROCK, TX Zip: 78664
   Telephone: 512.244.1546 FAX: 512.244.1010
   Email Address: TERRYH@HEAENG.COM

9. Project Location:

   ☒ The project site is located inside the city limits of ROUND ROCK.
   ☐ The project site is located outside the city limits but inside the ETJ (extra-territorial jurisdiction) of _____.
   ☐ The project site is not located within any city's limits or ETJ.

10. ☒ The location of the project site is described below. The description provides sufficient detail and clarity so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation.

    APPROX. 470 FT WEST OF THE SOUTHWEST CORNER OF THE INTERSECTION OF EAGLES NEST AND SUNRISE RD

11. ☒ **Attachment A – Road Map**. A road map showing directions to and the location of the project site is attached. The project location and site boundaries are clearly shown on the map.

12. ☒ **Attachment B - USGS / Edwards Recharge Zone Map**. A copy of the official 7 ½ minute USGS Quadrangle Map (Scale: 1" = 2000') of the Edwards Recharge Zone is attached. The map(s) clearly show:

    ☒ Project site boundaries.
    ☒ USGS Quadrangle Name(s).
    ☒ Boundaries of the Recharge Zone (and Transition Zone, if applicable).
    ☒ Drainage path from the project site to the boundary of the Recharge Zone.

13. ☒ **The TCEQ must be able to inspect the project site or the application will be returned**. Sufficient survey staking is provided on the project to allow TCEQ regional staff to locate the boundaries and alignment of the regulated activities and the geologic or manmade features noted in the Geologic Assessment.

☒ Survey staking will be completed by this date: 12/1/2022

14. ☒ **Attachment C – Project Description**. Attached at the end of this form is a detailed narrative description of the proposed project. The project description is consistent throughout the application and contains, at a minimum, the following details:

    ☒ Area of the site
    ☒ Offsite areas
    ☒ Impervious cover
    ☒ Permanent BMP(s)
    ☒ Proposed site use
    ☒ Site history
    ☐ Previous development
    ☐ Area(s) to be demolished

15. Existing project site conditions are noted below:

    ☐ Existing commercial site
    ☐ Existing industrial site
    ☐ Existing residential site
    ☐ Existing paved and/or unpaved roads
    ☐ Undeveloped (Cleared)
    ☒ Undeveloped (Undisturbed/Uncleared)
    ☐ Other: _____

Prohibited Activities

16. ☒ I am aware that the following activities are prohibited on the Recharge Zone and are not proposed for this project:

    (1) Waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control);

    (2) New feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3;

    (3) Land disposal of Class I wastes, as defined in 30 TAC §335.1;

    (4) The use of sewage holding tanks as parts of organized collection systems; and

    (5) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41(b), (c), and (d) of this title (relating to Types of Municipal Solid Waste Facilities).

    (6) New municipal and industrial wastewater discharges into or adjacent to water in the state that would create additional pollutant loading.

17. ☒ I am aware that the following activities are prohibited on the Transition Zone and are not proposed for this project:

    (1) Waste disposal wells regulated under 30 TAC Chapter 331 (relating to Underground Injection Control);

(2) Land disposal of Class I wastes, as defined in 30 TAC §335.1; and

(3) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41 (b), (c), and (d) of this title.

Administrative Information

18. The fee for the plan(s) is based on:

☒ For a Water Pollution Abatement Plan or Modification, the total acreage of the site where regulated activities will occur.
☐ For an Organized Sewage Collection System Plan or Modification, the total linear footage of all collection system lines.
☐ For a UST Facility Plan or Modification or an AST Facility Plan or Modification, the total number of tanks or piping systems.
☐ A request for an exception to any substantive portion of the regulations related to the protection of water quality.
☐ A request for an extension to a previously approved plan.

19. ☒ Application fees are due and payable at the time the application is filed. If the correct fee is not submitted, the TCEQ is not required to consider the application until the correct fee is submitted. Both the fee and the Edwards Aquifer Fee Form have been sent to the Commission's:

☒ TCEQ cashier
☐ Austin Regional Office (for projects in Hays, Travis, and Williamson Counties)
☐ San Antonio Regional Office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)

20. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

21. ☒ No person shall commence any regulated activity until the Edwards Aquifer Protection Plan(s) for the activity has been filed with and approved by the Executive Director.

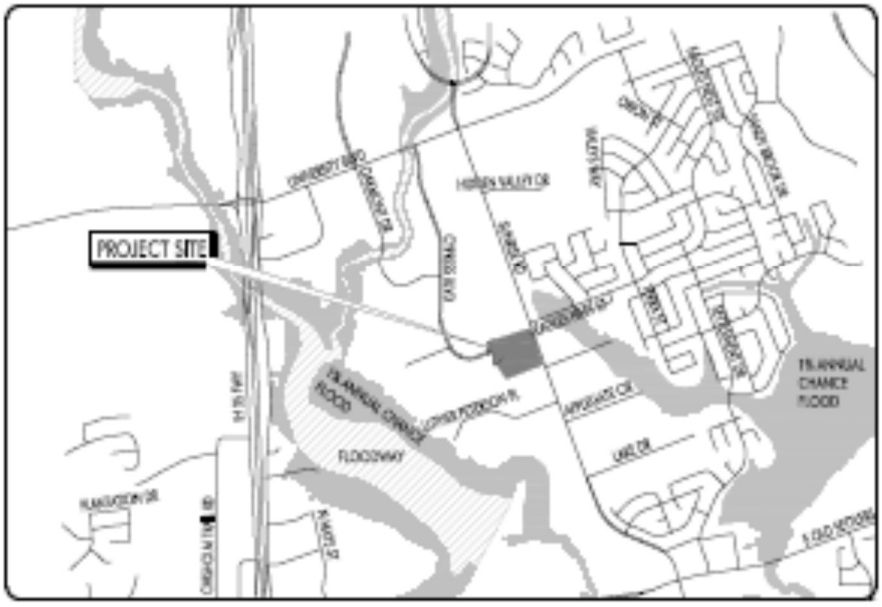
GENERAL INFORMATION

TCEQ-0587

ATTACHMENT A

ROAD MAP

SITE LOCATION MAP



GENERAL INFORMATION

TCEQ-0587

ATTACHMENT B

USGS/EDWARDS

RECHARGE ZONE MAP

EAGLES NEST 3

11/28/2022, 2:40:40 PM

Edwards Aquifer Label

Edwards Aquifer Boundary

Edwards Aquifer Boundary central line

City/Place

TX Counties

7.5 Minute Quad Grid

TCEQ_EDWARDS_OFFICIAL_MAPS

1:9,028

0 0.05 0.1 0.2 mi

0 0.1 0.2 0.4 km

Austin Community College, City of Austin, County of Williamson, Texas Parks & Wildlife, Esri, HERE, Garmin, GeoTechnologies, Inc., Intermap, USGS,

Web AppBuilder for ArcGIS

Austin Community College, City of Austin, County of Williamson, Texas Parks & Wildlife, Esri, HERE, Garmin, GeoTechnologies, Inc., Intermap, USGS, METI/NASA, EPA, USDA | TCEQ |

GENERAL INFORMATION FORM
FOR REGULATED ACTIVITIES ON THE
EDWARDS AQUIFER RECHARGE AND TRANSITION ZONES
AND RELATING TO 30 TAC §213.4(b) & §213.5(b)(2)(A), (B)
EFFECTIVE JUNE 1, 1999

PROJECT NAME: EAGLES NEST 3, 3259 EAGLES NEST STREET, ROUND ROCK, TEXAS 78665

ATTACHMENT C - PROJECT DESCRIPTION

Eagles Nest 3 (EN3 as the "Project") is the construction of an office/warehouse project within Chandler Creek Business Park (CCBP). The EN3 development includes 4 office/warehouse buildings and associated parking, drives, utilities, and stormwater management infrastructure. The Project is located at the southeast corner of the intersection of Sunrise Road and Eagles Nest Street. The project limits of construction area is approximately 22 acres with 10.76 acres of impervious cover. It is located currently on a portion of Lot 4A and Lot 5a, Block A, An Amending Plat of Replat of Chandler Oaks Lot 8, and a replat of Cypress Cove Subdivision Lot 2, and a Final Plat of 2.905 acres of Released Right-of-Way and Lot 1, Cypress Cove Subdivision. As part of the Project, a Replat will be submitted to the City of Round to reconfigure the property lines to provide a lot for each the proposed buildings. The Project is adjacent to and east of the Chandler Creek "Lot K" project. Stormwater management for the Project will be provided by a combination of UpFlo treatment units and the existing sedimentation/filtration pond which is west and a part of the Lot K project. All runoff from the Project will be collected in grate inlets and conveyed to the storm water management infrastructure through new and existing storm sewer piping as described below. The existing storm water management pond is privately maintained and the new treatment units will also be privately maintained.

Native grasses cover most of the Project area with minimal existing trees. The topography of the Subdivision as depicted on Sheet 07 (Existing Drainage Area Map) in the Site Development Permit plans is generally slopes from the west to the east. The Lot K development and a portion of the Project is within the Chandler Creek watershed. The remaining portion of the Project is within the Meadow Lake watershed. Due to the limited capacity of the existing storm sewer system in Sunrise Road and downstream channel, it is the intent to divert a portion of the Project's storm water to the west. This has been accomplished by collecting the runoff in a private storm sewer system sloping to the west running along the Project southern property line and connecting to an existing storm sewer pipe constructed as a part of the Lot K Project. This storm sewer infrastructure flows to the west to convey the developed storm water flows to an existing water quality and detention pond (SWMP) located on the southern half Lot 1, Cypress Cove Subdivision. This sed/fil pond is part of the Lot K WPAP approved in 2017 and was permitted under EAPP ID No. 11-11000805. The Lot K WPAP project area is 36.75 acres and provides water quality capacity for up to 29.40 acres of impervious cover. In 2017, a second WPAP (Chandler Creek Lot K Additional Parking) was approved under EAPP ID No. 11-11001648 for 2.48 acres of parking east of the Lot K project. This Project will modify the 2017 WPAP and will increase the total project area under this Modification to 45.26 acres. The portion of the Project which will drain to the Lot K existing sed/fil pond includes additional impervious cover and will result constructed impervious cover of:

Lot K WPAP EAPP ID No. 11-11000805:	11.60 acres
Lot K Parking WPAP EAPP ID No. 11-11001648:	1.065 acres
EN3 Project:	10.83 acres
TOTAL I.C.	23.49 acres.

This is within the Lot K WPAP approved impervious cover of 29.40 acres. A drainage and storm sewer easement has been dedicated by separate instrument for the pipe (15' wide) and encompasses the existing water quality and detention pond. Discharge from this SWMP is to the west into a natural channel which flows into Chandler Creek.

The remaining Project impervious not flowing to the existing sed/fil pond, which is treated by UpFlo units is 4.45 acres (10.83 – 6.38).

Stormwater runoff from the development is characterized as commercial. Pollutant loading is in the form of hydrocarbons related to oil and gas residue from parked cars, pesticides and herbicides and fertilizers typically associated with lawn maintenance. In order to meet the pollutant removal requirements, the sand filtration water quality pond has been designed in accordance with TCEQ Technical Guidance Manual RG-348.

Wastewater flows will be generated by the Project.

ATTACHMENT D – NATURE OF EXCEPTION

No exception is being requested

ATTACHMENT E - EQUIVALENT WATER QUALITY PROTECTION

Equivalent water quality protection is provided by the existing sed/fil basin and new Upflo treatment units to achieve 80% removal of the TSS load.

GEOLOGIC ASSESSMENT

TCEQ-0585

SCI ENGINEERING, INC.
EARTH • SCIENCE • SOLUTIONS
GEOTECHNICAL
ENVIRONMENTAL
NATURAL RESOURCES
CULTURAL RESOURCES
CONSTRUCTION SERVICES

October 14, 2022

Ken Wheeler
Burke Real Estate Group
260 East Baker Street, Suite 100
Costa Mesa, California 92626

RE: Geologic Assessment
Eagles Nest 3
Round Rock, Texas
SCI No. 2022-1257.30

Dear Ken Wheeler:

At your request, Burke Real Estate Group, SCI Engineering, Inc. (SCI) conducted a Geologic Assessment of an approximately 15.3-acre site located at the southwest corner of the intersection of Sunrise Road and Eagles Nest Drive in Round Rock, Texas. Our services were provided in general accordance with our proposal, dated September 23, 2022. The Geologic Assessment was completed in compliance with the Texas Commission on Environmental Quality (TCEQ) requirements for regulated developments located within the Edwards Aquifer Recharge Zone (EARZ). As the site is within the EARZ, the Geological Assessment must be completed and signed by a Professional Geoscientist licensed in the State of Texas. This letter addresses those requirements and describes SCI's observations during the site assessment.

According to *30 TAC 213.5(b)(3)*, Effective June 1, 1999, a Geologic Assessment must include:

- Geologic Assessment Form (TCEQ-0585);
- Geologic Assessment Table (TCEQ-0585-Table);
- Overview Maps;
- Site Geologic Map;
- Narrative Description of Geology and Soils; and
- Site Photographs.

PROJECT DESCRIPTION

SCI understands that the project site totals approximately 15.31 acres and will likely include a future light industrial development, as zoned. The proposed project site lies within the EARZ with the closest mapped blue line tributary located greater than 600 feet away. As the proposed project meets the 30 TAC 213 definition of a regulated activity, a GA will be required to be submitted to TCEQ in conjunction with the Water Pollution Abatement Plan (WPAP), prepared by others, and approved prior to the beginning of construction activities.

SITE INVESTIGATION

The site investigation was conducted on September 28, 2022 by a SCI Staff Geologist/Geoscientist in Training (GIT) under the supervision of a State of Texas Licensed Professional Geoscientist (PG). Vegetation consisted of tall grasses throughout the majority of the project site with deciduous tree's rooted in the northeastern corner of the property. Based on available topographic information, the site gently slopes downward from the west towards the east with approximately 15 feet of change in elevation. The project site is entirely underlain by fluviatile terrace deposits (Qt) belonging to the Quaternary period according to data published by the United States Geological Survey (USGS).

The field investigation was performed in 50-foot transects to evaluate the property for potential sensitive/recharge features. No sensitive features (ex. caves, sinkholes, depressions, faults/fractures) were identified within the 15.3-acre lot, nor along its perimeter.

SUMMARY

No sensitive features were identified within the project site, and it seems improbable that surficial alluvial deposits allow for sufficient recharge to underlying formations. However, it is possible that features may be covered by soil, organic debris, or vegetation. If karst features are found during excavation or construction, further investigation may be required to determine the extent of these features and their influence on the Edwards aquifer.

LIMITATIONS

This report has been prepared for the exclusive use of Burke Real Estate Group. SCI is not responsible for independent conclusions or recommendations made by others. The findings of this report are valid as of the present date of the assessment. SCI is not responsible for surveys, calculations, or plans that were prepared by others.

We appreciate the opportunity to be of service to you on this project. If you have any questions or comments, please do not hesitate to contact us.

Respectfully,

SCI ENGINEERING, INC.
Texas Engineering Firm F-7870

Tonya S. Sonsteng, P.E.
Senior Engineer

Brian C. Ratajczyk, P.G.
Professional Geoscientist

10/14/2022

STATE OF TEXAS
BRIAN C RATAJCZYK
GEOLOGY
13035
LICENSED
PROFESSIONAL GEOSCIENTIST

JDM/RCK/TSS/BCR/nmn

Enclosures: Attachment A - Geologic Assessment Form and Table
Attachment B – Generalized Stratigraphic Column
Attachment C – Site Geology and Soils Description
Attachment D – Figures
Attachment E – Photographic Summary

Attachment A

Geologic Assessment

Texas Commission on Environmental Quality

For Regulated Activities on The Edwards Aquifer Recharge/transition Zones and Relating to 30 TAC §213.5(b)(3), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

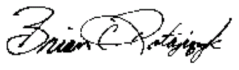
To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Print Name of Geologist: Brian Ratajczyk Telephone: 512-996-9199

Date: 10/14/2022 Fax: 1-844-462-0439

Representing: SCI Engineering, Inc. - TBPG 13035 (Name of Company and TBPG or TBPE registration number)

Signature of Geologist:

 10/14/2022

Regulated Entity Name: Burke Real Estate Group

Project Information

1. Date(s) Geologic Assessment was performed: 09-28-2022
2. Type of Project:
   - ☒ WPAP
   - ☐ SCS
   - ☐ AST
   - ☐ UST
3. Location of Project:
   - ☒ Recharge Zone
   - ☐ Transition Zone
   - ☐ Contributing Zone within the Transition Zone

4. ☒ **Attachment A - Geologic Assessment Table**. Completed Geologic Assessment Table (Form TCEQ-0585-Table) is attached.

5. ☒ Soil cover on the project site is summarized in the table below and uses the SCS Hydrologic Soil Groups* (Urban Hydrology for Small Watersheds, Technical Release No. 55, Appendix A, Soil Conservation Service, 1986). If there is more than one soil type on the project site, show each soil type on the site Geologic Map or a separate soils map.

Table 1 - Soil Units, Infiltration Characteristics and Thickness

Soil Name	Group*	Thickness(feet)

Soil Name	Group*	Thickness(feet)
(HoB) Houston Black Clay, 1 to 3 percent slopes	D	> 6.5
(AsB) Austin Silty Clay, 1 to 3 percent slopes	D	1.8 - 3.3

** Soil Group Definitions (Abbreviated)*

A. Soils having a high infiltration rate when thoroughly wetted.

B. Soils having a moderate infiltration rate when thoroughly wetted.

C. Soils having a slow infiltration rate when thoroughly wetted.

D. Soils having a very slow infiltration rate when thoroughly wetted.

6. ☒ **Attachment B – Stratigraphic Column**. A stratigraphic column showing formations, members, and thicknesses is attached. The outcropping unit, if present, should be at the top of the stratigraphic column. Otherwise, the uppermost unit should be at the top of the stratigraphic column.

7. ☒ **Attachment C – Site Geology**. A narrative description of the site specific geology including any features identified in the Geologic Assessment Table, a discussion of the potential for fluid movement to the Edwards Aquifer, stratigraphy, structure(s), and karst characteristics is attached.

8. ☒ **Attachment D – Site Geologic Map(s)**. The Site Geologic Map must be the same scale as the applicant's Site Plan. The minimum scale is 1": 400'

   Applicant's Site Plan Scale: 1" = _____'
   Site Geologic Map Scale: 1" = 200'
   Site Soils Map Scale (if more than 1 soil type): 1" = _____'

9. Method of collecting positional data:

   ☒ Global Positioning System (GPS) technology.
   ☐ Other method(s). Please describe method of data collection: _____

10. ☒ The project site and boundaries are clearly shown and labeled on the Site Geologic Map.
11. ☒ Surface geologic units are shown and labeled on the Site Geologic Map.
12. ☐ Geologic or manmade features were discovered on the project site during the field investigation. They are shown and labeled on the Site Geologic Map and are described in the attached Geologic Assessment Table.

    ☒ Geologic or manmade features were not discovered on the project site during the field investigation.
13. ☒ The Recharge Zone boundary is shown and labeled, if appropriate.
14. All known wells (test holes, water, oil, unplugged, capped and/or abandoned, etc.): If applicable, the information must agree with Item No. 20 of the WPAP Application Section.

    ☐ There are _____ (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)
    - ☐ The wells are not in use and have been properly abandoned.
    - ☐ The wells are not in use and will be properly abandoned.
    - ☐ The wells are in use and comply with 16 TAC Chapter 76.

    ☒ There are no wells or test holes of any kind known to exist on the project site.

Administrative Information

15. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

GEOLOGIC ASSESSMENT TABLE			PROJECT NAME:																	
LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	>40	<1.6	>1.6	
No Features were identified																				

* DATUM:_____

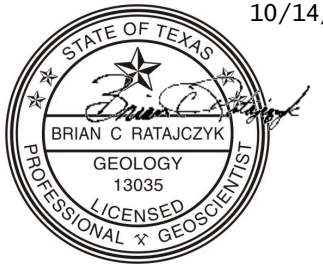
2A TYPE	TYPE	2B POINTS
C	Cave	30
SC	Solution cavity	20
SF	Solution-enlarged fracture(s)	20
F	Fault	20
O	Other natural bedrock features	5
MB	Manmade feature in bedrock	30
SW	Swallow hole	30
SH	Sinkhole	20
CD	Non-karst closed depression	5
Z	Zone, clustered or aligned features	30

8A INFILLING	
N	None, exposed bedrock
C	Coarse - cobbles, breakdown, sand, gravel
O	Loose or soft mud or soil, organics, leaves, sticks, dark colors
F	Fines, compacted clay-rich sediment, soil profile, gray or red colors
V	Vegetation. Give details in narrative description
FS	Flowstone, cements, cave deposits
X	Other materials

12 TOPOGRAPHY
Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

I have read, I understood, and I have followed the Texas Commission on Environmental Quality's Instructions to Geologists. The information presented here complies with that document and is a true representation of the conditions observed in the field.
My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

10/14/2022



TCEQ-0585-Table (Rev. 10-01-04)

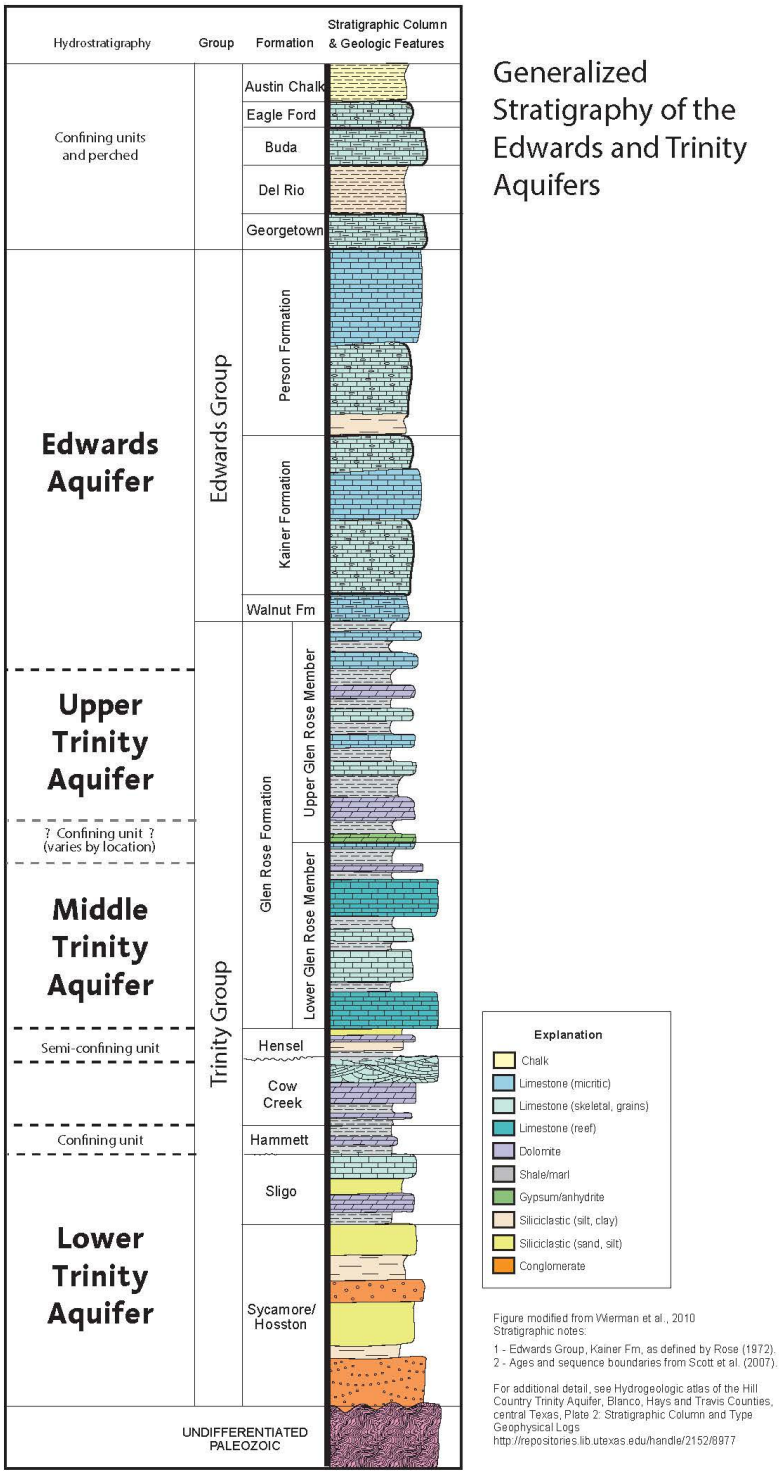
Attachment B

Attachment B – Stratigraphic Column

Generalized Stratigraphy of the Edwards and Trinity Aquifers, underlaying the proposed project.

Source: The stratigraphic column *Barton Springs Edwards Aquifer Conservation District* (2022) defines the generalized stratigraphy and aquifers around the project site.

https://bseacd.org/aquifer-science/about-the-aquifers/



Attachment C

Attachment C – Site Geology and Soils Description

SITE GEOLOGY NARRATIVE

Geologic Setting

In Williamson County, Texas, the project site is located within the Central Hill Country region and on the westernmost edge of the Blackland Prairie ecoregion. It is also situated 2.5 miles north of Brushy Creek and 5.5 miles south of the San Gabriel River. With the region's semi-arid climate, precipitation is approximately 36 inches per year. The project site is primarily underlain by thick, clayey soils that are proximal to the undivided Georgetown and Del Rio Clay formations beyond the property's boundary. The Balcones fault zone, a series of normal faults that have influenced elevation change within the region, transects the general area in which the project site is located.

Stratigraphy: Housh (2007)

Cenozoic deposits are primarily derived from Edwards limestone and chert, and these deposits may be further divided into three terraced units based on their elevations. The highest terrace, otherwise known as the Uvalde gravel, is considered to range between Pliocene to Pleistocene in age. The two lower terraces may range between Pleistocene to Recent in age, and their approximate thickness is between 20 to 25 feet. The composition of the lower terraces is unconsolidated alluvium and gravel.

In Round Rock, Texas, the approximate thickness of the Georgetown Formation ranges between 87 and 90 feet according to water well data. Carbonates were deposited in numerous subtidal environments as evidenced by the large number of shallow-water fossils found within Georgetown strata. Undivided, the Georgetown Formation primarily consists of limestone that ranges from nodular to chalky to crystalline, but correlated guide fossils may be used to further divide the unit into its five members. Georgetown strata are conformably overlain by the Del Rio Formation.

The approximate thickness of the Del Rio Formation is 70 feet, and its strata are conformably overlain by the Buda Formation. The Del Rio Formation may have been deposited in a lagoonal environment as supported by its fossil assemblages and high pyrite content. The laminated mudstones and shales of the Del Rio Formation are greenish gray to yellowish-brown in color and are often gypsiferous.

A Stratigraphic Column Illustrating the Generalized Stratigraphy of the Edwards and Trinity Aquifers, underlaying the proposed project is provided in Appendix B. (Barton Springs Edwards Aquifer Conservation District (2022) defines the generalized stratigraphy and aquifers around the project site, accessed from https://bseacd.org/aquifer-science/about-the-aquifers/).

Structure: Housh (2007)

The Balcones fault zone ultimately controls the structural geology of the region, displacing eastward dipping strata of the Early and Late Cretaceous as much as 1,000 feet down to the east through north to northeast-trending normal faults. It is thought that this displacement occurred primarily during the late Oligocene or early Miocene; others have argued instead that movement during the Late Cretaceous and Pliocene is plausible. Fault systems proximal to the project site include the Onion and Three-Mile faults to the west and the Chandler fault to the east. Strata dip between 10 to 20 feet per mile west of the Balcones fault zone, whereas strata east of the Balcones fault zone dip up to 200 feet per mile.

In general, aquifer recharge occurs where formations are exposed at or near the surface, but it may also occur in the presence of faults, fractures, and karst features. Exposure of the Edwards Formation is often correlated to karst development within the region. Karst features are commonly found along fractures, joints, and bedding planes within the Edwards Formation.

SITE SUMMARY

The site investigation was conducted on September 28, 2022 by a SCI Staff Geologist/Geoscientist in Training (GIT) under the supervision of a State of Texas Licensed Professional Geoscientist (PG). Vegetation consisted of tall grasses throughout the majority of the project site with deciduous tree's rooted in the northeastern corner of the property. Based on available topographic information, the site gently slopes downward from the west towards the east with approximately 15 feet of change in elevation. The project site is entirely underlain by fluviatile terrace deposits (Qt) belonging to the Quaternary period according to data published by the USGS.

Regarding man-made structures, a detention pond is situated in the property's northeast corner with a storm water inlet situated within the eastern embankment. A storm water channel, measuring approximately 300 feet in length, is located in the southwest corner of the property, and situated adjacent to the western property boundary, trending north-northwest to south-southeast, with concrete storm water culverts at each end. Light industrial manufacturing properties border the project site to the west, whereas municipal offices (transportation services) and commercial properties (fuel station and storage facilities) are present to the south and east, respectively.

The field investigation was performed in 50-foot transects to evaluate the property for potential sensitive/recharge features. No sensitive features (ex. caves, sinkholes, depressions, faults/fractures) were identified within the 15.3-acre lot, nor along its perimeter.

SOILS DESCRIPTION

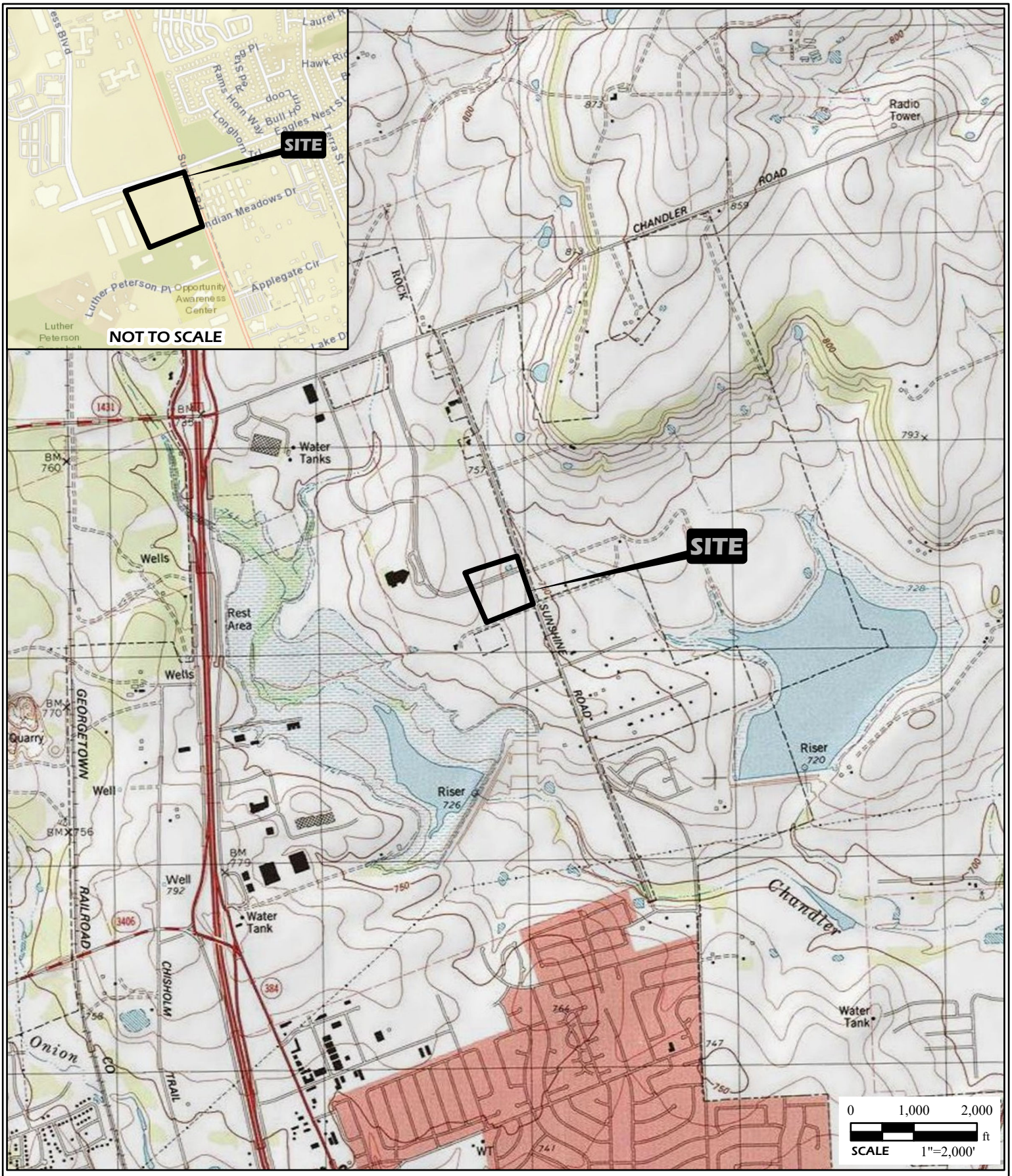
Information regarding soil descriptions is derived from the soil survey of Williamson County published by the Soil Conservation Service via the Web Soil Survey application. Approximately 89 percent of the project site is underlain by Houston black clay, 1 to 3 percent slopes (HoB). As a Hydrologic Group D soil, the HoB unit exhibits very slow infiltration and transmission rates, but it does have high runoff potential. Its natural drainage class is moderately well-drained. Parent material consists of clayey residuum weathered from Upper Cretaceous calcareous mudstones, and its soil profile is entirely comprised of clay.

The remaining 11 percent of the project site is underlain by Austin silty clay, 1 to 3 percent slopes (AsB). The AsB unit is also a Hydrologic Group D soil, and its natural drainage class is well-drained. Parent material consists of residuum weathered from chalk, and its soil profile ranges from silty clay to bedrock.

Table 1 – Soil Description

Map Symbol and Map Unit Name	Component/ Local Phase	Component Percent	Landform	Depth to Restrictive Feature	Depth to Water Table	Hydrologic Soil Group
HoB: Houston black clay, 1 to 3 percent slopes	Houston	80	Ridges	> 80"	> 80"	D
Minor Components	Heiden	15	Plains			
	Fairlie	5	Ridges			
AsB: Austin silty clay, 1 to 3 percent slopes	Austin	90	Ridges	22" – 39"	> 80"	D
Minor Components	Houston	10	Ridges			

Attachment D

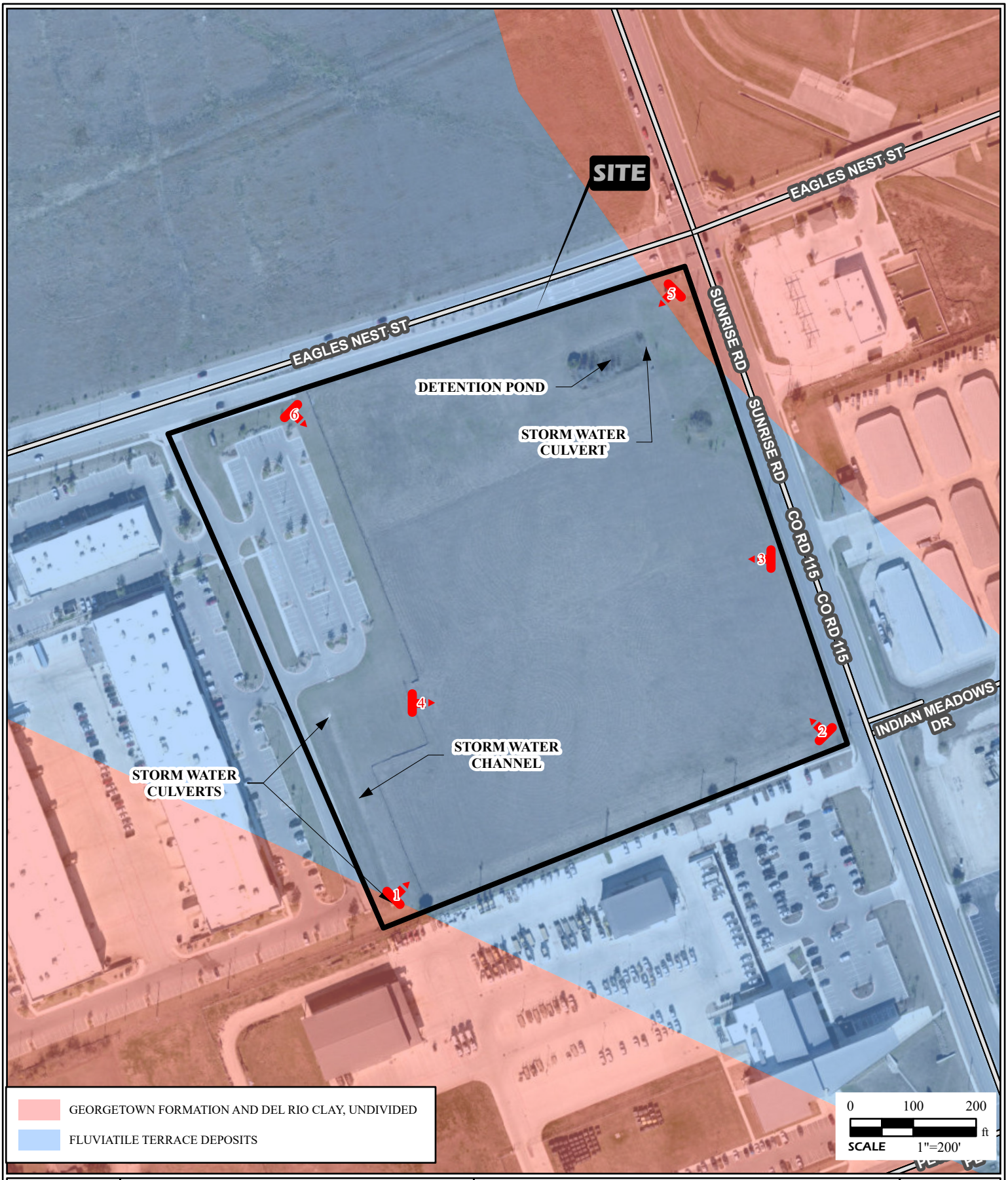


	PROJECT NAME EAGLES NEST 3 ROUND ROCK, TEXAS			GENERAL NOTES/LEGEND USGS TOPOGRAPHIC MAP ROUND ROCK, TEXAS QUADRANGLE DATED 1987 10' CONTOURS STREET MAP HTTP://GOTO.ARCGISONLINE.COM/MAPS/WORLD_STREET_MAP
	VICINITY AND TOPOGRAPHIC MAP			
	DRAWN BY JTM	DATE	JOB NUMBER	FIGURE
	CHECKED BY RJG	10/2022	2022-1257.30	1

PROJECT NAME: EAGLES NEST 3 ROUND ROCK, TEXAS				GENERAL NOTES/LEGEND
SITE GEOLOGIC MAP				AERIAL PHOTOGRAPH OBTAINED FROM ARCGIS ONLINE, WORLD IMAGERY. DIMENSIONS AND LOCATIONS ARE APPROXIMATE; ACTUAL MAY VARY. DRAWING SHALL NOT BE USED OUTSIDE THE CONTEXT OF THE REPORT FOR WHICH IT WAS GENERATED.
DRAWN BY: JTM	DATE: 10/2022	JOB NUMBER: 2022-1257.30		
CHECKED BY: RJG				

N
W
E
S

FIGURE
2



PROJECT NAME: EAGLES NEST 3 ROUND ROCK, TEXAS				GENERAL NOTES/LEGEND
AERIAL PHOTOGRAPH				APPROXIMATE PHOTO LOCATIONS AERIAL PHOTOGRAPH OBTAINED FROM ARCGIS ONLINE, WORLD IMAGERY. DIMENSIONS AND LOCATIONS ARE APPROXIMATE; ACTUAL MAY VARY. DRAWING SHALL NOT BE USED OUTSIDE THE CONTEXT OF THE REPORT FOR WHICH IT WAS GENERATED.
DRAWN BY: JTM	DATE: 10/2022	JOB NUMBER: 2022-1257.30		N, W, E, S
CHECKED BY: RJG				FIGURE: 3

Attachment E

Photo 1. Overview of project area at the southwest corner, facing northeast

Photo 2. Overview of project area at the southeast corner, facing northwest

Photo 3. Overview of project area from the eastern boundary, facing west

Photo 4. Overview of project area near the western boundary, facing east

Photo 5. Overview of project area from the northeast corner, facing southwest

Photo 6. Overview of project area from the northwest corner, facing southeast

MODIFICATION OF A PREVIOUSLY APPROVED APPLICATION

TCEQ-0590

Modification of a Previously Approved Plan

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Transition Zone and Relating to 30 TAC 213.4(j), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This request for a **Modification of a Previously Approved Plan** is hereby submitted for TCEQ review and executive director approval. The request was prepared by:

Print Name of Customer/Agent: TERRY HAGOOD

Date: 04/30/2023

Signature of Customer/Agent:

Project Information

1. Current Regulated Entity Name: EAGLES NEST 3
   Original Regulated Entity Name: CHANDLER CREEK PARCEL LOT K ADDITIONAL PARKING
   Regulated Entity Number(s) (RN): 10726674
   Edwards Aquifer Protection Program ID Number(s): 11-001648
   ☒ The applicant has not changed and the Customer Number (CN) is: 604552380
   ☐ The applicant or Regulated Entity has changed. A new Core Data Form has been provided.

2. ☒ **Attachment A: Original Approval Letter and Approved Modification Letters**. A copy of the original approval letter and copies of any modification approval letters are attached.

3. A modification of a previously approved plan is requested for (check all that apply):
   - ☐ Physical or operational modification of any water pollution abatement structure(s) including but not limited to ponds, dams, berms, sewage treatment plants, and diversionary structures;
   - ☐ Change in the nature or character of the regulated activity from that which was originally approved or a change which would significantly impact the ability of the plan to prevent pollution of the Edwards Aquifer;
   - ☒ Development of land previously identified as undeveloped in the original water pollution abatement plan;
   - ☐ Physical modification of the approved organized sewage collection system;
   - ☐ Physical modification of the approved underground storage tank system;
   - ☐ Physical modification of the approved aboveground storage tank system.

4. ☒ Summary of Proposed Modifications (select plan type being modified). If the approved plan has been modified more than once, copy the appropriate table below, as necessary, and complete the information for each additional modification.

WPAP Modification Summary	***Approved Project***	***Proposed Modification***
Acres	2.48	15.30
Type of Development	COMMERCIAL	COMMERCIAL
Number of Residential Lots	0	0
Impervious Cover (acres)	1.126	10.83
Impervious Cover (%	45.4	70.7
Permanent BMPs	SED/FIL	SED/FIL AND WET VAULT
Other	_____	_____

SCS Modification Summary	***Approved Project***	***Proposed Modification***
Linear Feet	0	_____
Pipe Diameter	0	_____
Other	0	_____

AST Modification Summary	***Approved Project***	***Proposed Modification***
Number of ASTs	N/A	_____
Volume of ASTs	N/A	_____
Other	N/A	_____

UST Modification Summary	***Approved Project***	***Proposed Modification***
Number of USTs	N/A	_____
Volume of USTs	N/A	_____
Other	N/A	_____

5. ☒ **Attachment B: Narrative of Proposed Modification**. A detailed narrative description of the nature of the proposed modification is attached. It discusses what was approved, including any previous modifications, and how this proposed modification will change the approved plan.

6. ☒ **Attachment C: Current Site Plan of the Approved Project**. A current site plan showing the existing site development (i.e., current site layout) at the time this application for modification is attached. A site plan detailing the changes proposed in the submitted modification is required elsewhere.
   - ☒ The approved construction has not commenced. The original approval letter and any subsequent modification approval letters are included as Attachment A to document that the approval has not expired.
   - ☐ The approved construction has commenced and has been completed. Attachment C illustrates that the site was constructed as approved.
   - ☐ The approved construction has commenced and has been completed. Attachment C illustrates that the site was **not** constructed as approved.
   - ☐ The approved construction has commenced and has **not** been completed. Attachment C illustrates that, thus far, the site was constructed as approved.
   - ☐ The approved construction has commenced and has **not** been completed. Attachment C illustrates that, thus far, the site was **not** constructed as approved.

7. ☒ The acreage of the approved plan has increased. A Geologic Assessment has been provided for the new acreage.
   ☐ Acreage has not been added to or removed from the approved plan.

8. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

MODIFICATION OF A PREVIOUSLY APPROVED APPLICATION

TCEQ-0590

ATTACHMENT A

ORIGINAL APPROVAL LETTER & APPROVED MODIFICATION LETTERS

2019119941 AFF Total Pages: 6

Deed Recordation Affidavit
Edwards Aquifer Protection Plan

THE STATE OF CALIFORNIA §

County of ORANGE §

BEFORE ME, the undersigned authority, on this day personally appeared BRIAN BURKE who, being duly sworn by me deposes and says:

(1) That my name is BRIAN BURKE and that I own the real property described below.

(2) That said real property is subject to an EDWARDS AQUIFER PROTECTION PLAN which was required under the 30 Texas Administrative Code (TAC) Chapter 213.

(3) That the EDWARDS AQUIFER PROTECTION PLAN for said real property was approved by the Texas Commission on Environmental Quality (TCEQ) on November 15, 2019.

A copy of the letter of approval from the TCEQ is attached to this affidavit as Exhibit A and is incorporated herein by reference.

(4) The said real property is located in WILLIAMSON County, Texas, and the legal description of the property is as follows:

B. R. Burke
BRIAN BURKE
LANDOWNER-AFFIANT

THE STATE OF CALIFORNIA §

County of ORANGE §

BEFORE ME, the undersigned authority, on this day personally appeared BRIAN BURKE known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that (s)he executed same for the purpose and consideration therein expressed.

GIVEN under my hand and seal of office on this 10 day of December, 2019.

JONATHAN FOTOPOULOS
COMM. # 2293350
NOTARY PUBLIC - CALIFORNIA
ORANGE COUNTY
MY COMM. EXP. JULY 13, 2023

NOTARY PUBLIC

Jonathan Fotopoulos
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: July 13, 2023

TCEQ-0625 (Rev. 10/01/04)

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

November 14, 2019

Ken Wheeler
Chandler Creek Parcel J&K,LP
206 E. Baker Street, STE. 100
Costa Mesa, CA 92626

Re: Edwards Aquifer, Williamson County

NAME OF PROJECT: Chandler Creek Lot K Additional Parking; Located at SE of Cypress Blvd and Eagle Nest St.; Round Rock, Texas

TYPE OF PLAN: Request for Approval of a Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer

Edwards Aquifer Protection Program ID No. 11001648; Regulated Entity No. RN107206674

Dear Mr. Wheeler:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP Application for the above-referenced project submitted to the Austin Regional Office by Hagood Engineering Associates, Inc. on behalf of Chandler Creek Parcel J&K,LP on July 25, 2019. Final review of the WPAP was completed after additional material was received on October 21, 2019 and November 12, 2019. As presented to the TCEQ, the Temporary and Permanent Best Management Practices (BMPs) were selected and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer Protection Plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

BACKGROUND

A WPAP application was approved by letter dated November 9, 2017 (EAPP ID No. 11000805), included the construction of four buildings, parking, truck courts, joint use drives, utilities and a Water Quality Pond, a partial sedimentation /filtration basin, to provide permanent water quality treatment for the site. The project for the 36.75 acre lot included 11.73 acres of

impervious cover (31.9 percent). The pond was sized for TSS load removal based on 29.40 acres of impervious cover for the commercial lot.

PROJECT DESCRIPTION

The proposed non-residential project will have an area of approximately 36.75 acres. It will include the construction of a parking lot, a grass drainage channel and its associated appurtenances. The impervious cover for the project will be 1.13 acres and will increase the impervious cover of the site to 12.86 acres (35.0 percent). Project wastewater will be disposed of by conveyance to the existing Brushy Creek Regional Wastewater Treatment Plant.

PERMANENT POLLUTION ABATEMENT MEASURES

To prevent the pollution of stormwater runoff originating on-site or upgradient of the site and potentially flowing across and off the site after construction, an existing partial sedimentation/filtration basin (Water Quality Pond; EAPP ID No. 11000805) designed using the TCEQ technical guidance document, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices (2005), will be utilized to treat stormwater runoff. The required total suspended solids (TSS) treatment for this project is 980 pounds of TSS generated from the 1.13 acres of impervious cover. The approved measures meet the required 80 percent removal of the increased load in TSS caused by the project.

GEOLOGY

According to the Geologic Assessment included with the application, the soils at the site are described as Houston Black clay, Denton Silty clay Eckrant Rock Outcrop Complex and Georgetown Stony clay loam and Austin Silty clay. The surficial units at the site are Quaternary Alluvium and Georgetown Formation. No sensitive features were identified on the site. The TCEQ site assessment conducted on September 5, 2019 revealed the site to be generally as described.

SPECIAL CONDITIONS

I. This modification is subject to all Special and Standard Conditions listed in the WPAP approval letter dated November 09, 2017.

II. All permanent pollution abatement measures shall be operational prior to occupancy of the facility.

III. All sediment and/or media removed from the water quality basin during maintenance activities shall be properly disposed of according to 30 TAC 330 or 30 TAC 335, as applicable.

STANDARD CONDITIONS

1. Pursuant to Chapter 7 Subchapter C of the Texas Water Code, any violations of the requirements in 30 TAC Chapter 213 may result in administrative penalties.
2. The holder of the approved Edwards Aquifer protection plan must comply with all provisions of 30 TAC Chapter 213 and all best management practices and measures

contained in the approved plan. Additional and separate approvals, permits, registrations and/or authorizations from other TCEQ Programs (i.e., Stormwater, Water Rights, UIC) can be required depending on the specifics of the plan.

3. In addition to the rules of the Commission, the applicant may also be required to comply with state and local ordinances and regulations providing for the protection of water quality.

Prior to Commencement of Construction:

4. Within 60 days of receiving written approval of an Edwards Aquifer Protection Plan, the applicant must submit to the Austin Regional Office, proof of recordation of notice in the county deed records, with the volume and page number(s) of the county deed records of the county in which the property is located. A description of the property boundaries shall be included in the deed recordation in the county deed records. A suggested form (Deed Recordation Affidavit, TCEQ-0625) that you may use to deed record the approved WPAP is enclosed.
5. All contractors conducting regulated activities at the referenced project location shall be provided a copy of this notice of approval. At least one complete copy of the approved WPAP and this notice of approval shall be maintained at the project location until all regulated activities are completed.
6. Modification to the activities described in the referenced WPAP application following the date of approval may require the submittal of a plan to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval prior to initiating construction of the modifications.
7. The applicant must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to the Austin Regional Office no later than 48 hours prior to commencement of the regulated activity. Written notification must include the date on which the regulated activity will commence, the name of the approved plan and program ID number for the regulated activity, and the name of the prime contractor with the name and telephone number of the contact person. The executive director will use the notification to determine if the approved plan is eligible for an extension.
8. Temporary erosion and sedimentation (E&S) controls, i.e., silt fences, rock berms, stabilized construction entrances, or other controls described in the approved WPAP, must be installed prior to construction and maintained during construction. Temporary E&S controls may be removed when vegetation is established and the construction area is stabilized. If a water quality pond is proposed, it shall be used as a sedimentation basin during construction. The TCEQ may monitor stormwater discharges from the site to evaluate the adequacy of temporary E&S control measures. Additional controls may be necessary if excessive solids are being discharged from the site.
9. All borings with depths greater than or equal to 20 feet must be plugged with non-shrink grout from the bottom of the hole to within three (3) feet of the surface. The remainder of the hole must be backfilled with cuttings from the boring. All borings less than 20 feet must be backfilled with cuttings from the boring. All borings must be backfilled or plugged within four (4) days of completion of the drilling operation. Voids may be filled with gravel.

During Construction:

10. During the course of regulated activities related to this project, the applicant or agent shall comply with all applicable provisions of 30 TAC Chapter 213, Edwards Aquifer.

The applicant shall remain responsible for the provisions and conditions of this approval until such responsibility is legally transferred to another person or entity.

11. This approval does not authorize the installation of temporary aboveground storage tanks on this project. If the contractor desires to install a temporary aboveground storage tank for use during construction, an application to modify this approval must be submitted and approved prior to installation. The application must include information related to tank location and spill containment. Refer to Standard Condition No. 6, above.
12. If any sensitive feature (caves, solution cavities, sink holes, etc.) is discovered during construction, all regulated activities near the feature must be suspended immediately. The applicant or his agent must immediately notify the Austin Regional Office of the discovery of the feature. Regulated activities near the feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the feature and the aquifer from potentially adverse impacts to water quality. The plan must be sealed, signed, and dated by a Texas Licensed Professional Engineer.
13. All water wells, including injection, dewatering, and monitoring wells must be in compliance with the requirements of the Texas Department of Licensing and Regulation under Title 16 TAC Chapter 76 (relating to Water Well Drillers and Pump Installers) and all other locally applicable rules, as appropriate.
14. If sediment escapes the construction site, the sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50 percent. Litter, construction debris, and construction chemicals shall be prevented from becoming stormwater discharge pollutants.
15. Intentional discharges of sediment laden water are not allowed. If dewatering becomes necessary, the discharge will be filtered through appropriately selected best management practices. These may include vegetated filter strips, sediment traps, rock berms, silt fence rings, etc.
16. The following records shall be maintained and made available to the executive director upon request: the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.
17. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and construction activities will not resume within 21 days. When the initiation of stabilization measures by the 14th day is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable.

<u>After Completion of Construction:</u>

18. Upon legal transfer of this property, the new owner(s) is required to comply with all terms of the approved Edwards Aquifer protection plan. If the new owner intends to commence any new regulated activity on the site, a new Edwards Aquifer protection plan that specifically addresses the new activity must be submitted to the executive director. Approval of the plan for the new regulated activity by the executive director is required prior to commencement of the new regulated activity.
19. An Edwards Aquifer protection plan approval or extension will expire and no extension will be granted if more than 50 percent of the total construction has not been completed within ten years from the initial approval of a plan. A new Edwards Aquifer protection plan must be submitted to the Austin Regional Office with the appropriate fees for

review and approval by the executive director prior to commencing any additional regulated activities.

20. At project locations where construction is initiated and abandoned, or not completed, the site shall be returned to a condition such that the aquifer is protected from potential contamination.

This action is taken under authority delegated by the Executive Director of the Texas Commission on Environmental Quality. If you have any questions or require additional information, please contact Bob Castro, P.E. of the Edwards Aquifer Protection Program of the Austin Regional Office at (512) 339-2929.

Sincerely,

Robert Sadlier, Section Manager
Edwards Aquifer Protection Program
Texas Commission on Environmental Quality

RCS/rbc

Enclosure: Deed Recordation Affidavit, Form TCEQ-0625

Return to:

Hagood Engineering Associates, Inc.
900 E. Main Street
Round Rock, TX 78664

(1)

FILED AND RECORDED
OFFICIAL PUBLIC RECORDS 2019119941

AFF Fee: $41.00
12/12/2019 11:25 AM OSALINAS

Nancy E. Rister, County Clerk
Williamson County, Texas

MODIFICATION OF A PREVIOUSLY APPROVED APPLICATION

Attachments to form TCEQ-0590

NARRATIVE OF PROPOSED MODIFICATION

The Project will increase the amount of acreage of the original Lot K WPAP from 36.75 acres to 45.26 acres. The Project is within the Chandler Creek and Meadow Lake watersheds. The original Lot K project also was in both watersheds. This Project will also modify the drainage boundary between the two watersheds due to the limited capacity of the existing storm sewer system in Sunrise Road and downstream channel. It is the intent to divert a portion of the Project's storm water to the west. This has been accomplished by collecting the runoff in a private storm sewer system sloping to the west running along the Project southern property line and connecting to an existing storm sewer pipe constructed as a part of the Lot K Project. This storm sewer infrastructure flows to the west to convey the developed storm water flows to an existing water quality and detention pond (SWMP) located on the southern half Lot 1, Cypress Cove Subdivision. This sed/fil pond is part of the Lot K WPAP approved in 2017 and was permitted under EAPP ID No. 11-11000805. The Lot K WPAP project area is 36.75 acres and provides water quality capacity for up to 29.40 acres of impervious cover. In 2017, a second WPAP (Chandler Creek Lot K Additional Parking) was approved under EAPP ID No. 11-11001648 for 2.48 acres of parking east of the Lot K project. This Project will modify the 2017 WPAP and will increase the total project area under this Modification to 45.26 acres. The portion of the Project which will drain to the Lot K existing sed/fil pond includes additional impervious cover will result constructed impervious cover of:

Lot K WPAP EAPP ID No. 11-11000805:	11.60 acres
Lot K Parking WPAP EAPP ID No. 11-11001648:	1.065 acres
EN3 Project:	10.83 acres
	23.49 acres.

This is within the Lot K WPAP approved impervious cover of 29.40 acres. A drainage and storm sewer easement has been dedicated by separate instrument for the pipe (15' wide) and encompasses the existing water quality and detention pond. Discharge from this SWMP is to the west into a natural channel which flows into Chandler Creek.

The remaining Project impervious which is treated by UpFlo units 4.45 acres (10.83 – 6.38).

MODIFICATION OF A PREVIOUSLY APPROVED PLAN

TCEQ-0590

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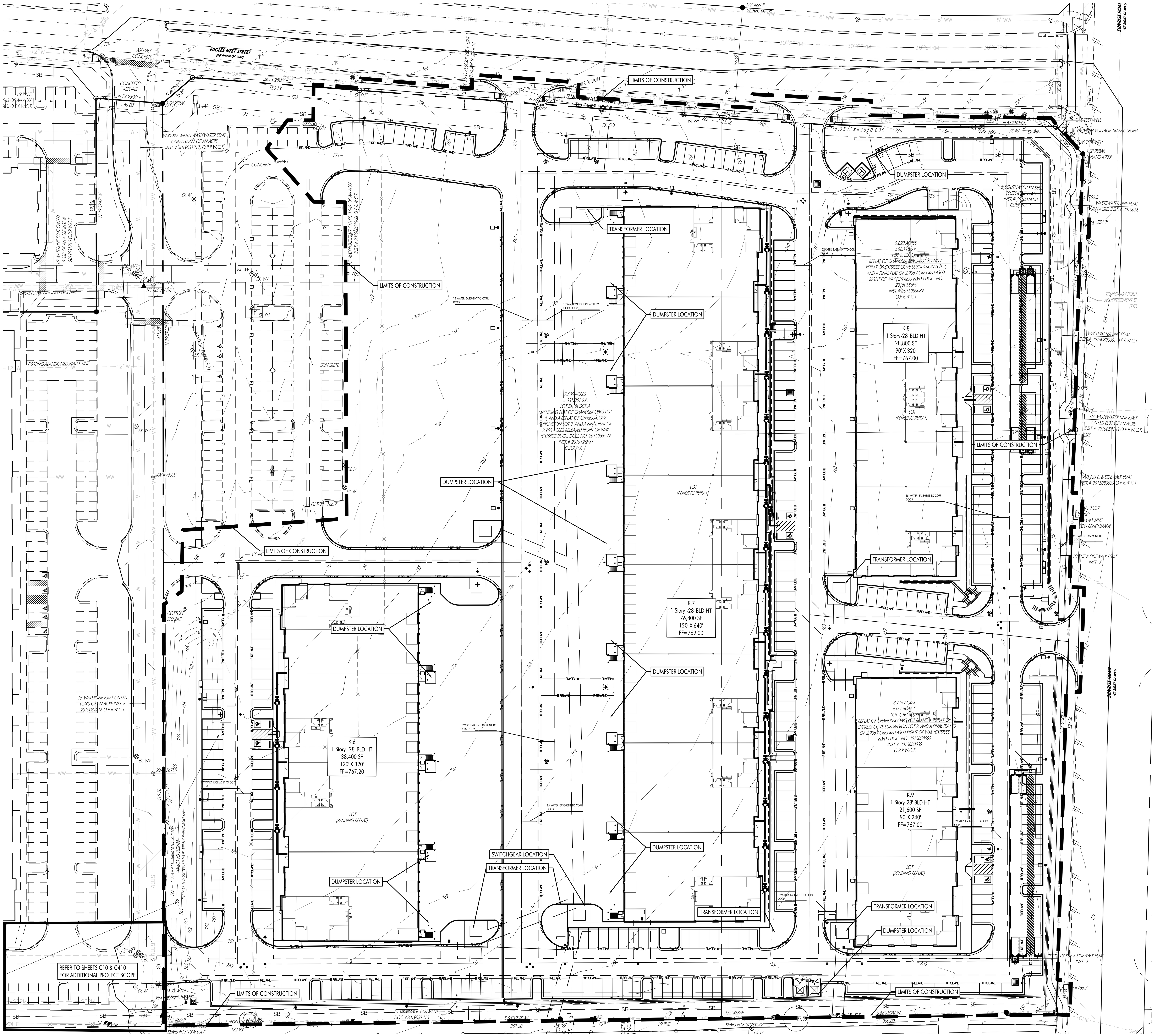
ATTACHMENT C

CURRENT SITE PLAN OF THE APPROVED PROJECT



TYPE OF CONSTRUCTION	
BUILDING OCCUPANCY TYPE:	B & S-1
TYPE OF CONSTRUCTION:	II-A
HEIGHT:	24'-28'

PROPOSED USAGE	OFFICE WAREHOUSE
LANDSCAPE AREA:	1.89 ACRES
LOT ACREAGE:	13.36

CALCULATIONS	BUILDING USE CATEGORY		
BUILDING AREAS	WAREHOUSE	OFFICE	TOTAL
BUILDING 'K.6' FOOTPRINT AREA	19,200 (50%)	19,200 (50%)	38,400
BUILDING 'K.7' FOOTPRINT AREA	57,600 (75%)	19,200 (25%)	76,800
BUILDING 'K.8' FOOTPRINT AREA	7,200 (25%)	21,600 (75%)	28,800
BUILDING 'K.9' FOOTPRINT AREA	5,400 (25%)	16,200 (75%)	21,600
	89,400	76,200	165,600

PARKING REQUIREMENTS	1 SP/2,500 SF	1 SP/250 SF	
BUILDING 'K.6' PARKING CALCULATIONS	8	77	85
BUILDING 'K.7' PARKING CALCULATIONS	23	77	101
BUILDING 'K.8' PARKING CALCULATIONS	3	86	89
BUILDING 'K.9' PARKING CALCULATIONS	2	65	67
			343

PARKING COUNTS	REQUIRED	PROVIDED	ADA PROVIDED
BUILDING 'K1' PARKING	85	85	3 w/ 1 VAN
BUILDING 'K2' PARKING	101	114	4 w/ 1 VAN
BUILDING 'K3' PARKING	89	105	5 w/ 1 VAN
BUILDING 'K4' PARKING	67	69	5 w/ 1 VAN
		373	

LEGEND

- IRON ROD FOUND/SET
- CONCRETE MONUMENT FOUND/SET
- NAIL FOUND/SET
- PIPE FOUND
- STORMWATER MANHOLE (DRAWN TO SCALE)
- JUNCTION BOX (DRAWN TO SCALE)
- GRATE INLET (DRAWN TO SCALE)
- WASTEWATER MANHOLE (DRAWN TO SCALE)
- WASTEWATER CLEANOUT
- GAS TEST STATION
- GAS METER
- ELECTRIC METER
- LIGHT POLE
- SIGNAL LIGHT POLE
- UTILITY POLE
- TELEPHONE MANHOLE
- FIRE HYDRANT
- GATE VALVE
- IRRIGATION CONTROL VALVE
- WATER METER
- EXISTING CONTOURS
- CONTOUR
- CURB AND GUTTER
- ASPHALT
- X' DIA. GAS LINE
- X' DIA. STORM SEWER LINE
- X' DIA. WASTEWATER LINE
- X' DIA. WATER LINE
- EXISTING CHAIN LINK FENCE
- EXISTING WIRE FENCE
- EXISTING WOOD FENCE
- SETBACK LINE
- EASEMENT LINE
- EXISTING ASPHALT
- EXISTING OVERHEAD ELECTRIC LINE
- EXISTING UNDERGROUND ELECTRIC LINE
- EXISTING OVERHEAD TELEPHONE LINE
- EXISTING UNDERGROUND TELEPHONE LINE
- EXISTING WATER LINE (SIZE VARIES)
- EXISTING WASTEWATER LINE (SIZE VARIES)
- EXISTING FORCE MAIN (SIZE VARIES)
- EXISTING FIBER OPTIC LINE
- EXISTING GAS LINE (SIZE VARIES)
- BENCHMARK LOCATION
- EXISTING TREE TO REMAIN (SIZE VARIES)
- EXISTING TREE TO BE REMOVED (SIZE VARIES)
- MONARCH/HERITAGE TREE (SIZE VARIES)
- PARCEL COUNT
- PARCEL LINES
- HANDICAP ROUTE

Studio8
Architecture & Interiors

1608 W 5th St.
Suite 100
(512) 473.8989
Austin, Texas
78703
studio8architects.com

Seal:

INCOMPLETE DOCUMENTS FOR INTERIM REVIEW ONLY. NOT FOR APPROVAL, PRICING, PERMIT, OR CONSTRUCTION.

11.04.2022

HAGOOD ENGINEERING ASSOCIATES
900 E. Main Street
Round Rock, TX 78664
Phone (512) 244-1546
Fax (512) 244-1010
www.heaeng.com
TBPE Reg. No. F-12709

STATE OF TEXAS
TERRY R. HAGOOD
52960
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY TERRY R. HAGOOD, P.E. 52960
THIS DRAWING MAY NOT BE MODIFIED WITHOUT THE EXPRESS WRITTEN CONSENT OF THE ENGINEER, AND THEN ONLY IN ACCORDANCE WITH THE RULES OF THE TEXAS ENGINEERING PRACTICE ACT.

JOB NO. 13-018.2 © 2022 HEA, Inc.
DATE SIGNED: 4/27/2023
ISSUED FOR: AGENCY REVIEW

. Eagles Nest 3
Lot KE - Bldgs. 6-9

3259 Eagles Nest St.
Round Rock, Texas,
78665

Issue

1	09.23.2022	50% CD - Pricing
2	11.04.2022	95% CD
3	12.05.2022	CORR/TCEQ
4	4.27.2023	TCEQ UPDATE

Project Number: 22-019g
Drawn By: JSR
Checked By: RB

SITE PLAN

SP

05

SDP2208-0002

13-018.2SP, 4/29/2023 10:44:52 AM, TerryH

WATER POLLUTION ABATEMENT PLAN APPLICATION

TCEQ-0584

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Water Pollution Abatement Plan Application

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Water Pollution Abatement Plan Application Form** is hereby submitted for TCEQ review and Executive Director approval. The form was prepared by:

Print Name of Customer/Agent:TERRY R HAGOOD

Date:04/30/2023

Signature of Customer/Agent:

Regulated Entity Name: EAGLES NEST 3

Regulated Entity Information

1. The type of project is:

   ☐ Residential: Number of Lots:_____
   ☐ Residential: Number of Living Unit Equivalents:_____
   ☒ Commercial
   ☐ Industrial
   ☐ Other:_____

2. Total site acreage (size of property):13.36

3. Estimated projected population:1050

4. The amount and type of impervious cover expected after construction are shown below:

Table 1 - Impervious Cover Table

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	165,092	÷ 43,560 =	3.79
Parking	273,992	÷ 43,560 =	6.29
Other paved surfaces	29,621	÷ 43,560 =	.75
Total Impervious Cover	468705	÷ 43,560 =	10.83

Total Impervious Cover 10.76 **÷ Total Acreage** 15.30 **X 100 =** 70.7**% Impervious Cover**

5. ☒ **Attachment A - Factors Affecting Surface Water Quality**. A detailed description of all factors that could affect surface water and groundwater quality that addresses ultimate land use is attached.

6. ☒ Only inert materials as defined by 30 TAC §330.2 will be used as fill material.

For Road Projects Only

Complete questions 7 - 12 if this application is exclusively for a road project.

7. Type of project:

   ☐ TXDOT road project.
   ☐ County road or roads built to county specifications.
   ☐ City thoroughfare or roads to be dedicated to a municipality.
   ☐ Street or road providing access to private driveways.

8. Type of pavement or road surface to be used:

   ☐ Concrete
   ☐ Asphaltic concrete pavement
   ☐ Other: _____

9. Length of Right of Way (R.O.W.):_____ feet.

   Width of R.O.W.:_____ feet.
   L x W = _____ Ft^2 ÷ 43,560 Ft^2/Acre = _____acres.

10. Length of pavement area:_____ feet.

    Width of pavement area:_____feet.
    L x W = _____Ft^2 ÷ 43,560 Ft^2/Acre = _____acres.
    Pavement area _____acres ÷ R.O.W. area _____acres x 100 = _____% impervious cover.

11. ☐ A rest stop will be included in this project.

    ☐ A rest stop will not be included in this project.

12. ☐ Maintenance and repair of existing roadways that do not require approval from the TCEQ Executive Director. Modifications to existing roadways such as widening roads/adding shoulders totaling more than one-half (1/2) the width of one (1) existing lane require prior approval from the TCEQ.

Stormwater to be generated by the Proposed Project

13. ☒ **Attachment B - Volume and Character of Stormwater**. A detailed description of the volume (quantity) and character (quality) of the stormwater runoff which is expected to occur from the proposed project is attached. The estimates of stormwater runoff quality and quantity are based on the area and type of impervious cover. Include the runoff coefficient of the site for both pre-construction and post-construction conditions.

Wastewater to be generated by the Proposed Project

14. The character and volume of wastewater is shown below:

100% Domestic	0 Gallons/day
0% Industrial	0 Gallons/day
0% Commingled	0 Gallons/day
TOTAL gallons/day 15750	

15. Wastewater will be disposed of by:

☐ On-Site Sewage Facility (OSSF/Septic Tank):

- ☐ **Attachment C - Suitability Letter from Authorized Agent**. An on-site sewage facility will be used to treat and dispose of the wastewater from this site. The appropriate licensing authority's (authorized agent) written approval is attached. It states that the land is suitable for the use of private sewage facilities and will meet or exceed the requirements for on-site sewage facilities as specified under 30 TAC Chapter 285 relating to On-site Sewage Facilities.
- ☐ Each lot in this project/development is at least one (1) acre (43,560 square feet) in size. The system will be designed by a licensed professional engineer or registered sanitarian and installed by a licensed installer in compliance with 30 TAC Chapter 285.

☒ Sewage Collection System (Sewer Lines):

- ☐ Private service laterals from the wastewater generating facilities will be connected to an existing SCS.
- ☐ Private service laterals from the wastewater generating facilities will be connected to a proposed SCS.

- ☐ The SCS was previously submitted on_____.
- ☒ The SCS was submitted with this application.
- ☐ The SCS will be submitted at a later date. The owner is aware that the SCS may not be installed prior to Executive Director approval.

☒ The sewage collection system will convey the wastewater to the Brushy Creek Regional Wastewater (name) Treatment Plant. The treatment facility is:

☒ Existing.
☐ Proposed.

16. ☒ All private service laterals will be inspected as required in 30 TAC §213.5.

Site Plan Requirements

Items 17 – 28 must be included on the Site Plan.

17. ☒ The Site Plan must have a minimum scale of 1" = 400'.

Site Plan Scale: 1" = 60'.

18. 100-year floodplain boundaries:

☐ Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled.
☒ No part of the project site is located within the 100-year floodplain.
The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s):_____

19. ☒ The layout of the development is shown with existing and finished contours at appropriate, but not greater than ten-foot contour intervals. Lots, recreation centers, buildings, roads, open space, etc. are shown on the plan.

☐ The layout of the development is shown with existing contours at appropriate, but not greater than ten-foot intervals. Finished topographic contours will not differ from the existing topographic configuration and are not shown. Lots, recreation centers, buildings, roads, open space, etc. are shown on the site plan.

20. All known wells (oil, water, unplugged, capped and/or abandoned, test holes, etc.):

☐ There are 0 (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply)

☐ The wells are not in use and have been properly abandoned.
☐ The wells are not in use and will be properly abandoned.
☐ The wells are in use and comply with 16 TAC §76.

☒ There are no wells or test holes of any kind known to exist on the project site.

21. Geologic or manmade features which are on the site:

☐ All sensitive geologic or manmade features identified in the Geologic Assessment are shown and labeled.
☒ No sensitive geologic or manmade features were identified in the Geologic Assessment.
☐ **Attachment D - Exception to the Required Geologic Assessment**. A request and justification for an exception to a portion of the Geologic Assessment is attached.

22. ☒ The drainage patterns and approximate slopes anticipated after major grading activities.

23. ☒ Areas of soil disturbance and areas which will not be disturbed.

24. ☒ Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.

25. ☒ Locations where soil stabilization practices are expected to occur.

26. ☐ Surface waters (including wetlands).

    ☒ N/A

27. ☐ Locations where stormwater discharges to surface water or sensitive features are to occur.

    ☒ There will be no discharges to surface water or sensitive features.

28. ☒ Legal boundaries of the site are shown.

Administrative Information

29. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

30. ☒ Any modification of this WPAP will require Executive Director approval, prior to construction, and may require submission of a revised application, with appropriate fees.

WATER POLLUTION ABATEMENT PLAN APPLICATION

Attachments to form TCEQ-0584

ATTACHMENT A

There are several factors that could affect surface and ground water quality. During construction, fuels and hazardous substances could spill. These spills shall be contained on-site and immediately cleaned up and properly discarded. Any spills or discharges of oil, petroleum products and used oil onto land having a volume greater than 25 gallons also, spills or discharges directly into waters of the state having a quantity sufficient enough to create a sheen, shall be reported immediately to TCEQ at (512) 339-2929 or the State Emergency Response Center at 1-800-832-8224. There are no significant factors proposed which could affect surface and ground water quality relating to the permanent use of the facility.

ATTACHMENT B

The character of the storm water leaving the site shall be filtered and all pollutants will remain onsite. There will be partial sedimentation/filtration pond located within the Subdivision which will filter the first flush of runoff from the proposed impervious areas. The outflow from this water quality pond will be released and discharged into the existing natural open channel and will not adversely impact the environment downstream.

ATTACHMENT C

Attachment C is not required. (Sustainability Letter for OSSF/Septic Tank)

ATTACHMENT D

Attachment D is not required. (Exception to the Geologic Assessment)

TEMPORARY STORMWATER

TCEQ-0602

Temporary Stormwater Section

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b)(4)(A), (B), (D)(I) and (G); Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Temporary Stormwater Section** is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

Print Name of Customer/Agent: TERRY R HAGOOD

Date: 04/30/2023

Signature of Customer/Agent:

Regulated Entity Name: EAGLES NEST 3

Project Information

Potential Sources of Contamination

Examples: Fuel storage and use, chemical storage and use, use of asphaltic products, construction vehicles tracking onto public roads, and existing solid waste.

1. Fuels for construction equipment and hazardous substances which will be used during construction:

   ☒The following fuels and/or hazardous substances will be stored on the site:deisel, gasoline

   These fuels and/or hazardous substances will be stored in:

   ☒Aboveground storage tanks with a cumulative storage capacity of less than 250 gallons will be stored on the site for less than one (1) year.

☐ Aboveground storage tanks with a cumulative storage capacity between 250 gallons and 499 gallons will be stored on the site for less than one (1) year.

☐ Aboveground storage tanks with a cumulative storage capacity of 500 gallons or more will be stored on the site. An Aboveground Storage Tank Facility Plan application must be submitted to the appropriate regional office of the TCEQ prior to moving the tanks onto the project.

☐ Fuels and hazardous substances will not be stored on the site.

2. ☒ **Attachment A - Spill Response Actions**. A site specific description of the measures to be taken to contain any spill of hydrocarbons or hazardous substances is attached.

3. ☒ Temporary aboveground storage tank systems of 250 gallons or more cumulative storage capacity must be located a minimum horizontal distance of 150 feet from any domestic, industrial, irrigation, or public water supply well, or other sensitive feature.

4. ☒ **Attachment B - Potential Sources of Contamination**. A description of any activities or processes which may be a potential source of contamination affecting surface water quality is attached.

Sequence of Construction

5. ☒ **Attachment C - Sequence of Major Activities**. A description of the sequence of major activities which will disturb soils for major portions of the site (grubbing, excavation, grading, utilities, and infrastructure installation) is attached.

   ☒ For each activity described, an estimate (in acres) of the total area of the site to be disturbed by each activity is given.

   ☒ For each activity described, include a description of appropriate temporary control measures and the general timing (or sequence) during the construction process that the measures will be implemented.

6. ☒ Name the receiving water(s) at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project: CHANDLER BRANCH

Temporary Best Management Practices (TBMPs)

Erosion control examples: tree protection, interceptor swales, level spreaders, outlet stabilization, blankets or matting, mulch, and sod. Sediment control examples: stabilized construction exit, silt fence, filter dikes, rock berms, buffer strips, sediment traps, and sediment basins. Please refer to the Technical Guidance Manual for guidelines and specifications. All structural BMPs must be shown on the site plan.

7. ☒ **Attachment D – Temporary Best Management Practices and Measures**. TBMPs and measures will prevent pollution of surface water, groundwater, and stormwater. The construction-phase BMPs for erosion and sediment controls have been designed to retain sediment on site to the extent practicable. The following information is attached:

☒ A description of how BMPs and measures will prevent pollution of surface water, groundwater or stormwater that originates upgradient from the site and flows across the site.

☒ A description of how BMPs and measures will prevent pollution of surface water or groundwater that originates on-site or flows off site, including pollution caused by contaminated stormwater runoff from the site.

☒ A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.

☒ A description of how, to the maximum extent practicable, BMPs and measures will maintain flow to naturally-occurring sensitive features identified in either the geologic assessment, TCEQ inspections, or during excavation, blasting, or construction.

8. ☒ The temporary sealing of a naturally-occurring sensitive feature which accepts recharge to the Edwards Aquifer as a temporary pollution abatement measure during active construction should be avoided.

☐ **Attachment E - Request to Temporarily Seal a Feature**. A request to temporarily seal a feature is attached. The request includes justification as to why no reasonable and practicable alternative exists for each feature.

☒ There will be no temporary sealing of naturally-occurring sensitive features on the site.

9. ☒ **Attachment F - Structural Practices**. A description of the structural practices that will be used to divert flows away from exposed soils, to store flows, or to otherwise limit runoff discharge of pollutants from exposed areas of the site is attached. Placement of structural practices in floodplains has been avoided.

10. ☒ **Attachment G - Drainage Area Map**. A drainage area map supporting the following requirements is attached:

☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin will be provided.

☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a smaller sediment basin and/or sediment trap(s) will be used.

☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin or other equivalent controls are not attainable, but other TBMPs and measures will be used in combination to protect down slope and side slope boundaries of the construction area.

☐ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. A smaller sediment basin and/or sediment trap(s) will be used in combination with other erosion and sediment controls within each disturbed drainage area.

☒ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. Erosion and sediment controls other than sediment basins or sediment traps within each disturbed drainage area will be used.

11. ☐ **Attachment H - Temporary Sediment Pond(s) Plans and Calculations**. Temporary sediment pond or basin construction plans and design calculations for a proposed temporary BMP or measure have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information must be signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed temporary BMPs and measures are attached.

☒ N/A

12. ☒ **Attachment I - Inspection and Maintenance for BMPs.** A plan for the inspection of each temporary BMP(s) and measure(s) and for their timely maintenance, repairs, and, if necessary, retrofit is attached. A description of the documentation procedures, recordkeeping practices, and inspection frequency are included in the plan and are specific to the site and/or BMP.

13. ☒ All control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections by the applicant or the executive director, or other information indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations.

14. ☒ If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain).

15. ☒ Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50%. A permanent stake will be provided that can indicate when the sediment occupies 50% of the basin volume.

16. ☒ Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).

Soil Stabilization Practices

Examples: establishment of temporary vegetation, establishment of permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, or preservation of mature vegetation.

17. ☒ **Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices**. A schedule of the interim and permanent soil stabilization practices for the site is attached.

18. ☒Records must be kept at the site of the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.

19. ☒Stabilization practices must be initiated as soon as practicable where construction activities have temporarily or permanently ceased.

Administrative Information

20. ☒All structural controls will be inspected and maintained according to the submitted and approved operation and maintenance plan for the project.

21. ☒If any geologic or manmade features, such as caves, faults, sinkholes, etc., are discovered, all regulated activities near the feature will be immediately suspended. The appropriate TCEQ Regional Office shall be immediately notified. Regulated activities must cease and not continue until the TCEQ has reviewed and approved the methods proposed to protect the aquifer from any adverse impacts.

22. ☒Silt fences, diversion berms, and other temporary erosion and sediment controls will be constructed and maintained as appropriate to prevent pollutants from entering sensitive features discovered during construction.

TEMPORARY STORWATER SECTION

Attachments to form TCEQ-0602

ATTACHMENT A

There are several factors that could affect surface and ground water quality. During construction, fuels and hazardous substances could spill. These spills shall be contained on-site and immediately cleaned up and properly discarded. Any spills or discharges of oil, petroleum products and used oil onto land having a volume greater than 25 gallons, and spills or discharges directly into waters of the state having a quantity sufficient enough to create a sheen, shall be reported immediately to TCEQ at (512) 339-2929 or the State Emergency Response Center at 1-800-832-8224. There are no significant factors proposed which could affect surface and ground water quality relating to the permanent use of the facility.

ATTACHMENT B

Potential Sources of Contamination:

1. Soil disturbance during construction.
2. Hydrocarbon-based fluids from Construction Equipment.
3. Landscaping – Fertilizer and Pesticides.

ATTACHMENT C

Sequence of major activities for each phase is as follows:

1. The installation of Erosion/Sedimentation Controls including temporary sediment basin.–3.5 Ac. Disturbed
2. Clearing, grubbing, and removal of topsoil from entire site – 22 Ac. Disturbed
3. Rough grading and excavation – 22 Ac. Disturbed
4. Excavating for utilities – 1 Ac. Disturbed
5. Finish grading and landscaping – 4 Ac. Disturbed

ATTACHMENT D

The Temporary Best Management Practices (TBMP) for this project will consist of:

1. A stabilized construction entrance.
2. Silt fencing and rock berms around down gradient boundary of site.

All TBMP's will be in place prior to any regulated activities commencing. The stabilized construction entrance will remove excess spoils from construction vehicles leaving the site. The silt fencing will collect silt runoff and debris during construction activities. These controls will be maintained during construction and will remain until after all construction activities are complete and permanent re-vegetation is established.

ATTACHMENT F

In order to limit runoff discharge of pollutants from exposed areas, a silt fence will provide overall control of runoff during construction from areas not otherwise draining to interior inlets which have been constructed as part of the project. For the constructed interior inlets, individual inlet protection is to be provided immediately upon completion of the installation of each inlet. For construction equipment leaving the site, a stabilized

construction entrance is to be installed prior to any ground disturbance. For concrete trucks which must clean out the truck drum, a concrete washout area is to be installed prior to any concrete being poured on the Project.

ATTACHMENT G

Refer to the drawings, sheet C50.

ATTACHMENT H

Not required.

ATTACHMENT I

The contractor is required to inspect the temporary construction entrance, concrete washout, construction staging area, silt fence, rock berms, inlet protection and any other erosion and sediment controls at weekly intervals and after significant rainfall events to insure that they are functioning properly. The person(s) responsible for maintenance of all controls and fences shall immediately make any necessary repairs to damaged areas or structures. Silt accumulation at controls must be removed when the depth reaches six (6) inches. Records described in the SWPPP must be retained on site for 5 years beyond the date of the cover letter notifying the facility of coverage under a storm water permit, and shall be made available to the state or federal compliance inspection officer upon request. Additionally, employee training records and waste and recycling receipts or vouchers shall also be maintained.

ATTACHMENT J

Schedule of Interim Soil Stabilization Practices:

1. Erosion and sediment control measures including perimeter sediment controls must be in place before vegetation is disturbed and must remain in place and be maintained and repaired.
2. Temporary stabilization or covering of soil stockpiles and protection of stockpile located away from construction activity must be maintained
3. Should construction activities cease for fifteen (15) days or more on any significant portion of the construction site, temporary stabilization is required for that portion of the site to prevent soil and wind erosion until work resumes on that portion of the site.
4. Should all construction activities cease for thirty days or more, the entire site must be temporarily stabilized using vegetation or a heavy mulch layer, temporary seeding or other method.

Schedule of Permanent Soil Stabilization Practices:

1. Stabilized any unpaved area that is final grade or remain unpaved for the next two weeks. Permanent stabilization may consist of sodding, seeding, or mulching that must be maintained to prevent erosion from the site until re-vegetation has achieved 70% coverage

2. Once construction is complete, remove all the pollution prevention measures that were temporary.

PERMANENT STORM SECTION

TCEQ-10400

Permanent Stormwater Section

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b)(4)(C), (D)(Ii), (E), and (5), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Permanent Stormwater Section** is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

Print Name of Customer/Agent: TERRY R HAGOOD

Date: 04/30/2023

Signature of Customer/Agent

Regulated Entity Name: CHANDLER CREEK LOT K TENANT ADDITIONAL PARKING

Permanent Best Management Practices (BMPs)

Permanent best management practices and measures that will be used during and after construction is completed.

1. ☒ Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.

   ☐ N/A

2. ☒ These practices and measures have been designed, and will be constructed, operated, and maintained to insure that 80% of the incremental increase in the annual mass loading of total suspended solids (TSS) from the site caused by the regulated activity is removed. These quantities have been calculated in accordance with technical guidance prepared or accepted by the executive director.

   ☒ The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.

☐ A technical guidance other than the TCEQ TGM was used to design permanent BMPs and measures for this site. The complete citation for the technical guidance that was used is: _____

☐ N/A

3. ☒ Owners must insure that permanent BMPs and measures are constructed and function as designed. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the appropriate regional office within 30 days of site completion.

   ☐ N/A

4. Where a site is used for low density single-family residential development and has 20 % or less impervious cover, other permanent BMPs are not required. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

   ☐ The site will be used for low density single-family residential development and has 20% or less impervious cover.
   ☐ The site will be used for low density single-family residential development but has more than 20% impervious cover.
   ☒ The site will not be used for low density single-family residential development.

5. The executive director may waive the requirement for other permanent BMPs for multi-family residential developments, schools, or small business sites where 20% or less impervious cover is used at the site. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

   ☐ **Attachment A - 20% or Less Impervious Cover Waiver**. The site will be used for multi-family residential developments, schools, or small business sites and has 20% or less impervious cover. A request to waive the requirements for other permanent BMPs and measures is attached.
   ☐ The site will be used for multi-family residential developments, schools, or small business sites but has more than 20% impervious cover.
   ☒ The site will not be used for multi-family residential developments, schools, or small business sites.

6. ☒ **Attachment B - BMPs for Upgradient Stormwater**.

☐ A description of the BMPs and measures that will be used to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site is attached.

☒ No surface water, groundwater or stormwater originates upgradient from the site and flows across the site, and an explanation is attached.

☐ Permanent BMPs or measures are not required to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site, and an explanation is attached.

7. ☒ **Attachment C - BMPs for On-site Stormwater**.

☒ A description of the BMPs and measures that will be used to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff from the site is attached.

☐ Permanent BMPs or measures are not required to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff, and an explanation is attached.

8. ☐ **Attachment D - BMPs for Surface Streams**. A description of the BMPs and measures that prevent pollutants from entering surface streams, sensitive features, or the aquifer is attached. Each feature identified in the Geologic Assessment as sensitive has been addressed.

☒ N/A

9. ☒ The applicant understands that to the extent practicable, BMPs and measures must maintain flow to naturally occurring sensitive features identified in either the geologic assessment, executive director review, or during excavation, blasting, or construction.

☒ The permanent sealing of or diversion of flow from a naturally-occurring sensitive feature that accepts recharge to the Edwards Aquifer as a permanent pollution abatement measure has not been proposed.

☐ **Attachment E - Request to Seal Features**. A request to seal a naturally-occurring sensitive feature, that includes, for each feature, a justification as to why no reasonable and practicable alternative exists, is attached.

10. ☒ **Attachment F - Construction Plans**. All construction plans and design calculations for the proposed permanent BMP(s) and measures have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer, and are signed, sealed, and dated. The plans are attached and, if applicable include:

☒ Design calculations (TSS removal calculations)
☒ TCEQ construction notes
☒ All geologic features
☒ All proposed structural BMP(s) plans and specifications

☐ N/A

11. ☒ **Attachment G - Inspection, Maintenance, Repair and Retrofit Plan**. A plan for the inspection, maintenance, repairs, and, if necessary, retrofit of the permanent BMPs and measures is attached. The plan includes all of the following:

    ☒ Prepared and certified by the engineer designing the permanent BMPs and measures
    ☒ Signed by the owner or responsible party
    ☒ Procedures for documenting inspections, maintenance, repairs, and, if necessary retrofit
    ☒ A discussion of record keeping procedures

    ☐ N/A

12. ☐ **Attachment H - Pilot-Scale Field Testing Plan**. Pilot studies for BMPs that are not recognized by the Executive Director require prior approval from the TCEQ.A plan for pilot-scale field testing is attached.

    ☒ N/A

13. ☐ **Attachment I -Measures for Minimizing Surface Stream Contamination**. A description of the measures that will be used to avoid or minimize surface stream contamination and changes in the way in which water enters a stream as a result of the construction and development is attached. The measures address increased stream flashing, the creation of stronger flows and in-stream velocities, and other in-stream effects caused by the regulated activity, which increase erosion that results in water quality degradation.

    ☒ N/A

Responsibility for Maintenance of Permanent BMP(s)

Responsibility for maintenance of best management practices and measures after construction is complete.

14. ☒ The applicant is responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. Such entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred.

    ☐ N/A

15. ☒ A copy of the transfer of responsibility must be filed with the executive director at the appropriate regional office within 30 days of the transfer if the site is for use as a multiple single-family residential development, a multi-family residential development, or a non-residential development such as commercial, industrial, institutional, schools, and other sites where regulated activities occur.

    ☐ N/A

PERMANENT STORMWATER SECTION

Attachments to form TCEQ-0600

ATTACHMENT A

This attachment is not needed. (20% or less Impervious Cover Waiver)

ATTACHMENT B

There are no upgradient stormwater drainage areas which drain into the site.

ATTACHMENT C

. The Lot K development and a portion of the Project is within the Chandler Creek watershed. The remaining portion of the Project is within the Meadow Lake watershed. Due to the limited capacity of the existing storm sewer system in Sunrise Road and downstream channel, it is the intent to divert a portion of the Project's storm water to the west. This has been accomplished by collecting the runoff in a private storm sewer system sloping to the west running along the Project southern property line and connecting to an existing storm sewer pipe constructed as a part of the Lot K Project. This storm sewer infrastructure flows to the west to convey the developed storm water flows to an existing water quality and detention pond (SWMP) located on the southern half Lot 1, Cypress Cove Subdivision. This sed/fil pond is part of the Lot K WPAP approved in 2017 and was permitted under EAPP ID No. 11-11000805. The Lot K WPAP project area is 36.75 acres and provides water quality capacity for up to 29.40 acres of impervious cover. In 2017, a second WPAP (Chandler Creek Lot K Additional Parking) was approved under EAPP ID No. 11-11001648 for 2.48 acres of parking east of the Lot K project. This Project will modify the 2017 WPAP and will increase the total project area under this Modification to 45.26 acres. The portion of the Project which will drain to the Lot K existing sed/fil pond includes additional impervious cover will result constructed impervious cover of:

Lot K WPAP EAPP ID No. 11-11000805:	11.73 acres
Lot K Parking WPAP EAPP ID No. 11-11001648:	1.126 acres
EN3 Project:	8.800 acres
	21.656 acres.

This is within the Lot K WPAP approved impervious cover of 29.40 acres. A drainage and storm sewer easement has been dedicated by separate instrument for the pipe (15' wide) and encompasses the existing water quality and detention pond. Discharge from this SWMP is to the west into a natural channel which flows into Chandler Creek.

The remaining Project impervious which is treated by Hydro UpFlo units is 1.96 acres (10.76 – 8.80). Please refer to the attached TCEQ approval memorandum for the Hydro UpFlo units.

ATTACHMENT D

There are no surface streams, sensitive features or aquifer entrance points on this site. The water quality pond will significantly reduce the pollutants being piped to the downstream channel.

ATTACHMENT E

This attachment is not needed. (Request to Seal Features)

ATTACHMENT F

See attached drawings. (Construction Plans)

PERMANENT STORMWATER SECTION

Attachments to form TCEQ-0600

ATTACHMENT G

See attached maintenance plan for the ponds. (TCEQ-0589).

ATTACHMENT H

This attachment is not needed. (Pilot-Scale Field Testing Plan)

ATTACHMENT I

All flows from the site will be conveyed through a private storm sewer system to proposed BMPs. There will be no increase in the flows as demonstrated in the calculations in the plan sheets.

TCEQ Interoffice Memorandum

To: Susan M. Jablonski, P.E., Area Director, Central Texas Area

Thru: David Van Soest, Regional Director, Austin and Waco Regions
Lori Wilson, Assistant Regional Director, Austin and Waco Regions
Robert Sadlier, Section Manager, Edwards Aquifer Protection Program

From: Don Vandertulip, P.E., BCEE, Edwards Aquifer Protection Program
Innovative Technology (IT) Subcommittee

Date: September 9, 2020

Subject: Recommendation to Approve Hydro-International Stormwater Management Up-Flo® as a permanent best management practice (BMP) and to add the innovative technology to the TCEQ RG-348 Addendum

Brief Description: Hydro-International requests their product, Stormwater Management Up-Flo®, be included as an approved permanent best management practice in the TCEQ's regulatory guidance document, RG-348; Complying with the Edwards Aquifer Rules - Technical Guidance on Best Management Practices (2005).

Background

The Stormwater Management Up-Flo® by Hydro-International has received New Jersey Corporation for Advanced Technology (NJCAT) Technology Verification in January 2015. Field verification testing was conducted by the University of Alabama in 2011 using a New Jersey Technology Acceptance Reciprocity Program (TARP) protocol and Quality Assurance Project Plan (QAPP). Up-Flo® has also received a June 2019 Verification report from VerifiGlobal in accordance with International Organization for Standardization (ISO) 14034 Environmental Technology Verification. The Stormwater Management Up-Flo® Filter is a three stage, modular media filled filter, that traps and adsorbs particulates and pollutants.

Options and Considerations

Initial request for review began in June 2014 with review of documents submitted by Hydro-International. The review was paused until June 2018 when new submittals were requested. Proposed RG-348 addendum text was checked for accessibility by BrailleWorks and submitted by Hydro-International. Following review of proposed Addendum text and TSS Removal spreadsheet revisions, both are technically acceptable as of July 16, 2020.

Committee Recommended Option and Distribution

Accept new text sections for the RG-348 Addendum of the TCEQ Technical Guidance Manual and approve the manufacturer submitted TSS Removal and Unit Sizing spreadsheet with the three stage Stormwater Management Up-Flo® approved for 78-percent TSS removal.

TCEQ Interoffice Memorandum

Feedback to the Committee

☑ The recommendation is accepted as proposed.

☐ The recommendation is accepted with the following modifications. Comments:

Click here to enter text.

☐ The recommendation is being returned for further consideration. Comments:

Stormwater Management Up-Flo® Filter

The Stormwater Management Up-Flo® Filter is a three stage, modular media filled filter, that traps and adsorbs particulates and pollutants.

The Up-Flo® Filter is a combination device that utilizes three modes of treatment; sedimentation, screening, and high-rate upward flow filtration, all within the same structure. Stormwater enters the chamber via an inlet pipe or inlet grate and fills the filter chamber. First, trash, gross debris and sediment settle out in the sump while oil and floatables rise to the surface of the water. Second, flow is directed upwards to the filter modules through angled gross pollutant screens that remove all particles over 5 mm. Third the stormwater passes upwards through the filter media where fine particulates are removed along with some dissolved pollutants. The treated stormwater then exits the filter via an upper level enclosed channel to the outlet pipe via the Outlet Module.

Excess flows are discharged into the Outlet Module via a Siphonic Bypass, which also acts as a floatables baffle preventing the escape of oil and floatable trash. To guard against pollutant leaching and filter media degradation between storm events, the water level in the chamber is lowered to below the filter media through a slow release filtered Drain Down Port between storm events.

High loading rates means a smaller footprint while modular components can adapt to any catchment area. Systems can be configured in a variety of ways to suit your treatment goals and site conditions including vault (Figure 1) or manhole (Figure 2) (online or offline). Up-Flo® Filter systems are typically installed underground and downstream of a detention/retention system with an outlet control structure.

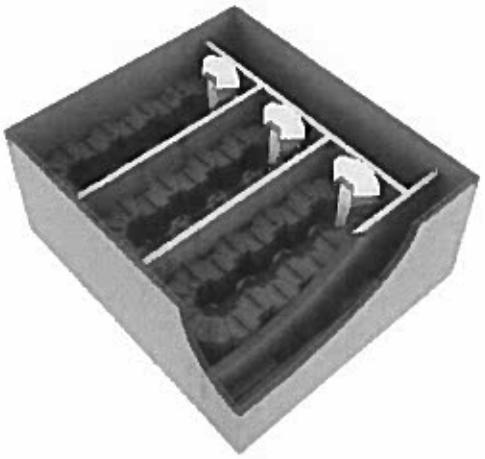


Figure 1 – Up-Flo® Vault

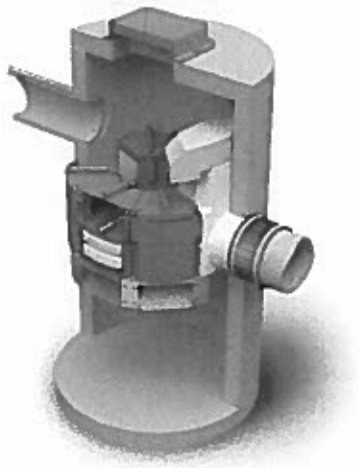


Figure 2 – Up-Flo® Filter Manhole

Selection Criteria

- Appropriate for space-limited areas
- No moving parts means there's less opportunity for treatment disruption or breakage
- Well suited for shallow sites where excavation is a costly concern
- Appropriate for small to medium drainage basins
- Requires a minimal amount of land since underground
- Appropriate for retrofits as well as new development
- Can be designed with an internal or external bypass to manage flow in excess of the treatment flow
- Can be installed with monitoring device to give a proper performance report and indication when service/maintenance is required

Limitations

- Requires regular (targeted annually) maintenance

Cost Considerations

Cost of the Up-Flo® Filter is generally less than that of a sand filter, particularly when installation costs are included.

Up-Flo® Filter

The Up-Flo® Filter is a passive flow-through stormwater filtration system with filter media contained in modules. Field testing in multiple locations indicates a TSS removal efficiency upwards of 78%. The Up-Flo® Filter can be used as a standalone device to treat stormwater, in a treatment train with a detention basin, or with equalization (no credit for TSS removal) to reduce the number of modules required.

Each module must be limited to a maximum specific flow rate of 25 gpm per filter module, and the total number of modules must be sufficient to treat the water quality volume (or flow depending on configuration) without bypass. The storage facility needs to be large enough to capture and treat the design storm prior to bypass around the system. When used in a treatment train following extended detention, the number of modules must be sufficient to treat the maximum discharge rate of the water quality volume from the extended detention basin. Additional modules can be used to reduce the required maintenance frequency.

Design Criteria

Design Rainfall Depth – The design rainfall depth is dependent on the characteristics of the contributing drainage area. The method for calculation of the fraction of annual rainfall to be treated (F) and the design rainfall depth is specified in Section 3.3 of this manual (Edwards Aquifer Technical Guidance Manual, June 20, 2005).

Number of Filter Modules Required – The number of modules should be sufficient to treat the water quality volume (or flow depending on configuration) without bypass at a specific flow rate of 25 gpm/filter module. Additional modules can be provided to reduce maintenance frequency by using a mass-loading approach. The mass-loading design assumes that some typical mass of pollutant is washed off a site during the year. Some portion of the mass drops out in the storage component, while the balance passes through to the filtration component. The number

of filter modules is then determined based upon the goal of removal of some balance of the mass, where each module is expected to remove a certain mass per module. The manufacturer can provide additional information to determine the optimum number of modules to balance cost with maintenance frequency.

Media Properties – The filter media should be CPZ®, a blend of Activated Carbon, Peat and Zeolite.

Sizing of Filtration Chamber – The size of the filtration component is determined based on the number of modules required. The filtration component will typically consist of three chambers: the filtration chamber, an inlet bay and the outlet bay.

Design Hyetograph to Calculate Incremental Rainfall Depth

Time (Minutes)	Incremental Rainfall Depth (in)
0	0.000
5	0.013
10	0.014
15	0.015
20	0.017
25	0.018
30	0.020
35	0.023
40	0.025
45	0.029
50	0.034
55	0.040
60	0.048
65	0.059
70	0.076
75	0.100
80	0.121
85	0.146
90	0.167
95	0.167
100	0.146
105	0.108
110	0.088
115	0.067
120	0.053
125	0.043
130	0.036
135	0.031
140	0.027
145	0.024
150	0.021
155	0.019
160	0.017
165	0.016
170	0.015

175	0.014
180	0.013

Internal Bypass

Flow in excess of the design filtration capacity discharges over a bypass weir located inside the manhole or adjacent to the vault installation.

Pollutant Capture

The Up-Flo® Filter is designed to operate as a "treatment train" by incorporating multiple treatment technologies into a single device. Trash and gross debris are removed by sedimentation and screening before they are introduced to the filtration media, preventing surface blinding of the filter media. The Up-Flo® Filter is a wet-sump device. Between storm events, oil and floatables are stored on the water surface separate from the sediment storage volume in the sump. The bypass siphon acts as a floatables baffle to prevent washout of captured floatable pollutants during high intensity events.

Reduced Clogging

The Up-Flo® Filter has been designed to minimize the occurrence of clogging and blinding and employs a unique Drain Down Filter that allows the water level in the chamber to drop below the filter media between events. The Drain Down Filter mechanism creates a reverse flow that flushes captured pollutants off the surface of the Media Bag, helping to prevent blinding. By allowing the water to drain out, the Drain Down Filter also reduces the weight of the Media Bags. This makes the bags easier and safer to remove during maintenance operations.

Overflow Protection

The Angled Screens are designed to prevent ragging and blinding and are situated below the Filter Modules, sheltering them from the direct path of the influent. Coarse debris settles in the sump before the runoff flows up through the screens, protecting them from blinding. In the unlikely event of a blockage, the high capacity siphonic Bypass Hood is designed to convey high enough flow to minimize the risk of large storm creating upstream flooding.

Up-Flo Filter® Maintenance Guidelines

The Up-Flo® Filter is a modular high-rate stormwater filtration device designed to capture trash, oil, sediment and remove fine pollutants such as dissolved and particulate metals and nutrients from stormwater runoff.

In general, a minimum of two inspections are required the first year after installation and an annual inspection frequency is required the following years to monitor sediment and gross pollutant accumulations. In order to achieve desired annual TSS removal rates using the Up-Flo® Filter, the minimum maintenance frequency specified in the maintenance section for replacement of the Media Pack and removal of accumulated sediment from the sump is mandatory.

Recommended maintenance guidelines include:

1. Set up any necessary safety equipment (such as traffic cones) to provide access to the Up-Flo® Filter. Safety equipment should notify passing pedestrian and road traffic that work is being done.
2. Remove the grate or lid to the manhole or vault.
3. Without entering the vessel, look down into the chamber to inspect the inside and to determine whether the high-water level indicator has been activated. Make note of any irregularities.
4. Without entering the vessel, use the pole with the skimmer net to remove floatables and loose debris from the chamber.
5. Using a sediment probe such as a Sludge-Judge®, measure the depth of sediment that has collected in the sump of the vessel. Maximum sediment depth is 16 inches (41 cm).
6. If the high-water level indicator has been activated after two consecutive storms, remove the Filter Module lid by turning the cam latch and remove the Filter Media Pack. Weigh the Media Bags from one or two modules. Media Bags should be replaced if the wet weight exceeds 40 lb.
7. Securely replace the grate or lid.

On the Maintenance Log provided by Hydro International, record the date, unit location, estimated volume of floatables and gross debris removed, and the depth of sediment measured. Also note any apparent irregularities such as damaged components or a high standing water level.

SUGGESTED MAINTENANCE PLAN AND SCHEDULE FOR SEDIMENTATION AND FILTRATION BASINS AND UPFLO TREATMENT UNITS

PROJECT NAME: CHANDLER CREEK EAGLES NEST 3

ADDRESS: 3259 EAGLES NEST STREET

CITY, STATE, ZIP: Round Rock, Texas 78665

MISCELLANEOUS STORMWATER STRUCTURES (TEMPORARY AND PERMANENT)

Monthly:
After Rainfall Inspect site concrete washout basin, stabilized construction entrance, and inlet protection elements for accumulated silt, debris or construction materials. Remove excess and reestablish structures to an original condition. Replace any damaged sections, components to provide the structure in its original condition.

SEDIMENTATION BASINS

Monthly: The vegetative growth in the basin shall be checked. The growth shall not exceed 18 inches in height.

Quarterly: The level of accumulated silt shall be checked. If depth of silt exceeds 6 inches, it shall be removed and disposed of "properly".

The basin shall be checked for accumulation of debris and trash. The debris and trash shall be removed if excessive. All debris and trash shall be removed at least every six months.

Annually: The basin shall be inspected for structural integrity and repaired if necessary.

After Rainfall: The basin shall be checked after each rainfall occurrence to insure that it drains within 48 hours after the storm is over. If it does not drain within this time, corrective maintenance will be accomplished.

FILTRATION BASINS

Monthly: The vegetative growth shall be checked. Vegetation in the basin shall not exceed 18 inches in height.

Quarterly: The level of accumulated silt shall be checked. If depth of silt/pollutants exceeds ½ inch, it shall be removed and disposed of "properly".

The accumulation of pollutants/oils shall be checked. If the pollutants have significantly reduced the designed capacity of the sand filter, the pollutants shall be removed.

The basin shall be checked for accumulation of debris and trash. The debris and trash shall be removed if excessive. All debris and trash shall be removed at least every six months.

Annually: The basin shall be inspected for structural integrity and repaired if necessary.

After Rainfall: The basin shall be checked after each rainfall occurrence to insure that it drains within 48 hours after the sedimentation basin has been emptied. If it does not drain within this time, corrective maintenance will be accomplished.

UPFLO TREATMENT UNITS

Refer to the attached manufacturers operation and maintenance manual.

Following any required maintenance, the surface of the filtration basin shall be raked and leveled to restore the system to its designed condition.

"Proper" disposal of accumulated silt shall be accomplished following Texas Commission for Environmental Quality and City of Round Rock guidelines and specifications.

An amended copy of this document will be provided to the Texas Commission for Environmental Quality within thirty (30) days of any changes in the following information.

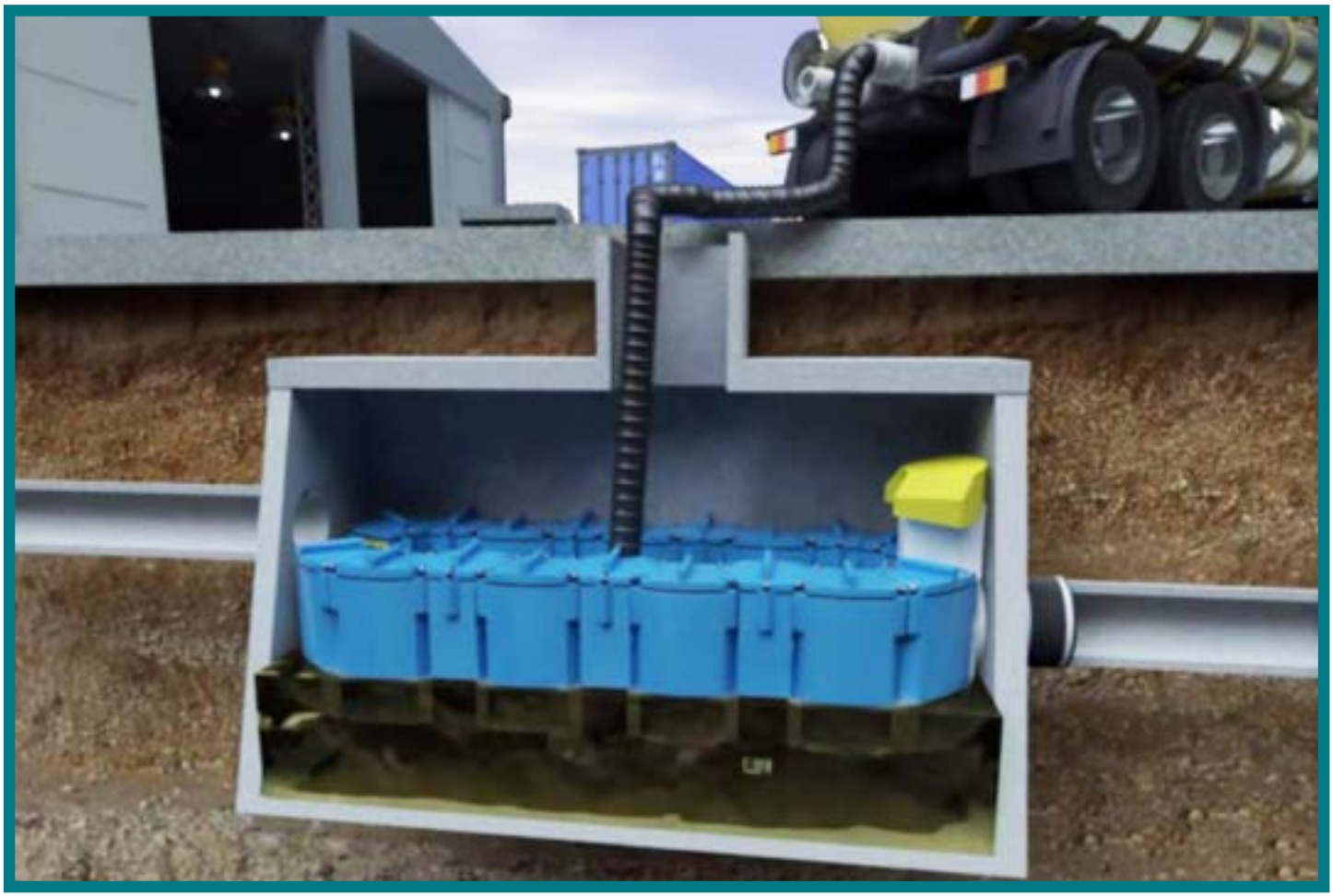
Responsible Party: BURKE EAGLES NEST II, LLC
Mailing Address: 260 E. BAKER STREET, STE. 100
City, State: COSTA MESA, CA Zip: 92626
Telephone: (714)824-6000 FAX: (714)824-6001

Signature of Responsible Party

1/11/2023
Date

STATE OF TEXAS
TERRY R. HAGOOD
52960
REGISTERED
PROFESSIONAL ENGINEER
04/26/2023

Hydro International®



Operation and Maintenance Manual

Stormwater Solutions

Up-Flo® Filter

Filtration System for Stormwater Treatment

94 Hutchins Drive
Portland, ME 04102

Tel: (207) 756-6200
Fax: (207) 756-6212
stormwaterinquiry@hydro-int.com

www.hydro-int.com

Table of Contents

IMPORTANT - ORDER REPLACEMENT PARTS FOR MAINTENANCE - IMPORTANT

Annual maintenance requires replacement of the Media Packs and the Drain Down Filter. Contact Hydro International to order replacements. Allow 2-4 weeks for delivery.

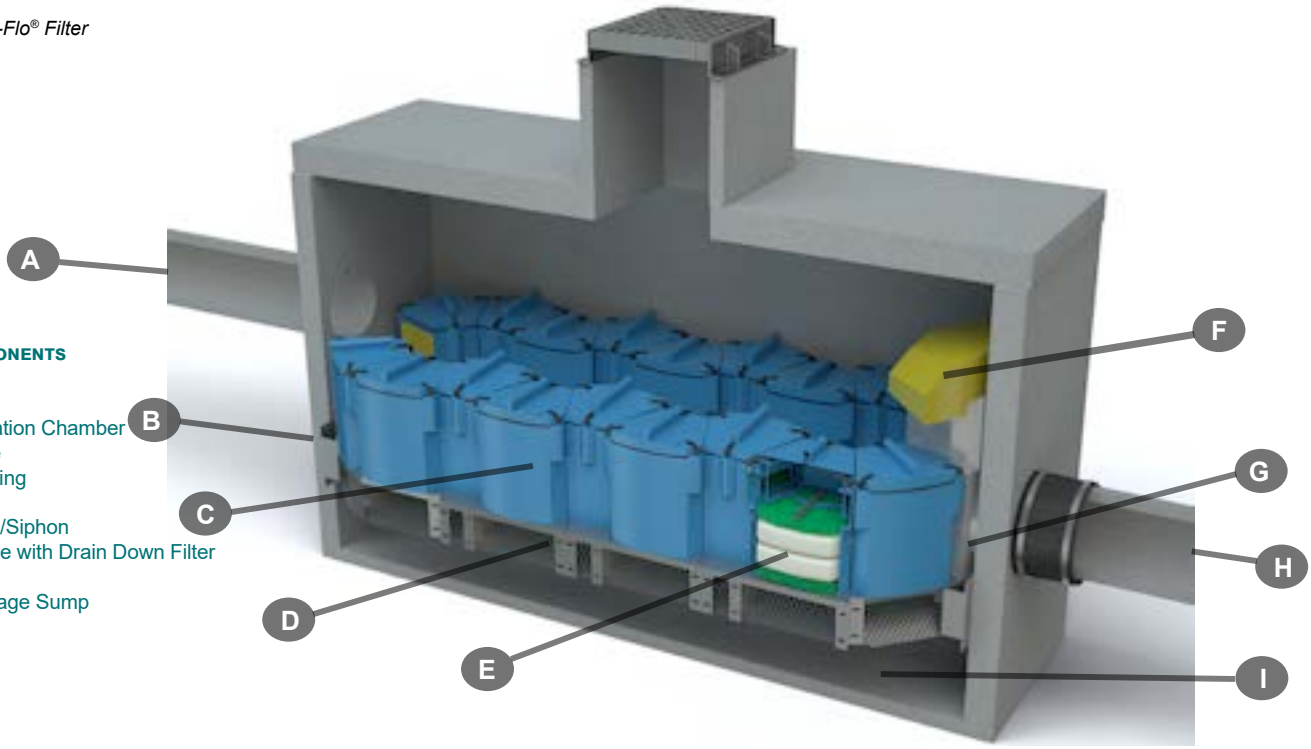
Office hours Monday thru Friday 8:00 A.M. to 5:00 P.M. EST
Toll free: 1-888-382-7808
Phone: 207-756-6200
Fax: 207-756-6212
Email: services@hydro-int.com

Overview & Product Description

The Up-Flo® Filter is a modular high-rate stormwater filtration device designed to capture trash, oil, sediment and remove fine pollutants such as dissolved and particulate metals and nutrients from stormwater runoff. Designed with efficiency, longevity and upkeep in mind, this high performance, low maintenance filter option that offers higher loading rates and longer media life for higher quality stormwater for longer periods between servicings.

In general, a minimum of two inspections are required per year to monitor sediment and gross pollutant accumulations. In order to achieve an annual TSS removal rate of 80% for the Up-Flo® Filter, the minimum maintenance frequency specified in the maintenance section for replacement of the Media Pack and removal of accumulated sediment from the sump is mandatory.

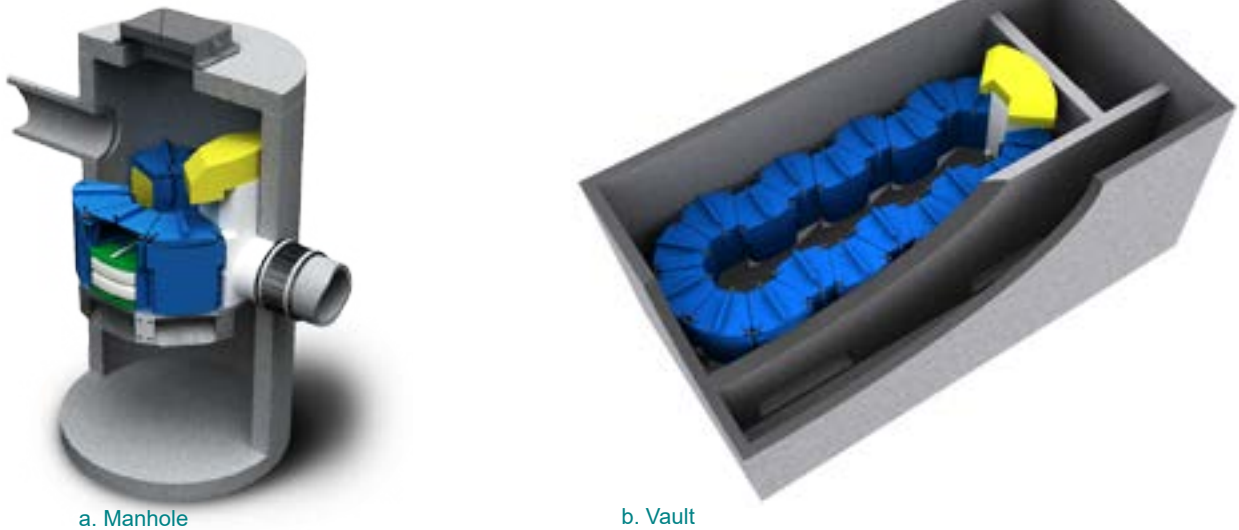
Fig.1 *The Up-Flo® Filter*



System Components

A. Inlet Pipe
B. Precast Filtration Chamber
C. Filter Module
D. 4mm Screening
E Media bag
F. Bypass Hood/Siphon
G. Outlet Module with Drain Down Filter
H. Outlet pipe
I. Pollutant Storage Sump

Product Configurations



a. Manhole

b. Vault

Fig.2 *The Up-Flo® Filter is installed in a) 4-ft (1.2m) round manholes or b) in rectangular precast vaults. Both configurations have a wide central opening in the Up-Flo® Filter.*

Hydro Maintenance Services

Hydro International has been engineering stormwater treatment systems for over 30 years. We understand the mechanics of removing pollutants from stormwater and how to keep systems running at an optimal level.

Nobody Knows our Systems Better than we do

Avoid Service Negligence

Sanitation services providers not intimately familiar with stormwater treatment systems are at risk of the following:

- Inadvertently breaking parts or failing to clean/replace system components appropriately.
- Charging you for more frequent maintenance because they lacked the tools to service your system properly in the first place.
- Billing you for replacement parts that might have been covered under your Hydro warranty plan
- Charging for maintenance that may not yet have been required.

Leave the Dirty Work to us

Trash, sediment and polluted water is stored inside treatment systems until they are removed by our team with a vactor truck. Sometimes teams must physically enter the system chambers in order to prepare the system for maintenance and install any replacement parts. Services include are are not limited to:

- Solids removal
- Removal of liquid pollutants
- Replacement media installation (when applicable)

Hydro International (Stormwater), 94 Hutchins Drive, Portland ME 04102
Tel: (207) 756-6200 Fax: (207) 756-6212 Web: www.hydro-int.com

Better Tools, Better Results

Not all vactor trucks are created equal. Appropriate tools and suction power are needed to service stormwater systems appropriately. Companies who don't specialize in stormwater treatment won't have the tools to properly clean systems or install new parts.

Service Warranty

Make sure you're not paying for service that is covered under your warranty plan. Only Hydro International's service teams can identify tune-ups that should be on us, not you.

Treatment Systems Serviced by Hydro:

- Stormwwater filters
- Stormwater separators
- Baffle boxes
- Biofilters/biorention systems
- Storage structures
- Catch basins
- Stormwater ponds
- Permeable pavement

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Operation

Introduction

The Up-Flo® Filter operates on simple fluid hydraulics. It is self-activating, has no moving parts, no external power requirements and is fabricated with durable non-corrosive components. Personnel are not required to operate the unit and maintenance is limited to periodic inspections, sediment and floatables removal, Media Pack replacement and Drain Down Filter replacement.

Pollutant Capture

The Up-Flo® Filter is designed to operate as a "treatment train" by incorporating multiple treatment technologies into a single device. Trash and gross debris are removed by sedimentation and screening before they are introduced to the filtration media, preventing surface blinding of the filter media. The Up-Flo® Filter is a wet-sump device. Between storm events, oil and floatables are stored on the water surface separate from the sediment storage volume in the sump (see **Fig.1**). The high-capacity bypass siphon acts as a floatables baffle to prevent washout of captured floatable pollutants during high intensity events.

Reduced Clogging

The Up-Flo® Filter has been designed to minimize the occurrence of clogging and blinding and employs a unique Drain Down Filter that allows the water level in the chamber to drop below the filter media between events. The Drain Down Filter mechanism creates a reverse flow that flushes captured pollutants off the surface of the Media Bag, helping to prevent blinding. By allowing the water to drain out, the Drain Down Filter also reduces the weight of the Media Bags. This makes the bags easier and safer to remove during maintenance operations.

Overflow Protection

The Angled Screens are designed to prevent ragging and blinding and are situated below the Filter Modules, sheltering them from the direct path of the influent. Coarse debris settles in the sump before the runoff flows up through the screens, protecting them from blinding. In the unlikely event of a blockage, the high capacity siphonic Bypass Hood is designed to convey high enough flow to minimize the risk of large storm creating upstream flooding.

Best Practices

Good housekeeping upstream of the Up-Flo® Filter can significantly extend Media Bag life. For example, sweeping paved surfaces, collecting leaves and grass trimmings, and protecting bare ground from erosion will reduce loading to the system. Media Packs should not be installed in the Filter Modules until construction activities are complete and site stabilization is effective.

Damage Due to Lack of Maintenance

Delayed maintenance would result in clogged Media Bags and/or blinded Angled Screens. In that situation, the Up-Flo® Filter would go into bypass and there would be no treatment of the incoming stormwater. Because the Bypass Weir can easily convey all of the flow to the Outlet Module, there would be no lasting damage to the system. Replacement of the Media Bags and removal of sediment from the sump would restore the Up-Flo® Filter to its original treatment efficiency. Establishing and adhering to a regular maintenance schedule ensures optimal performance of the system.

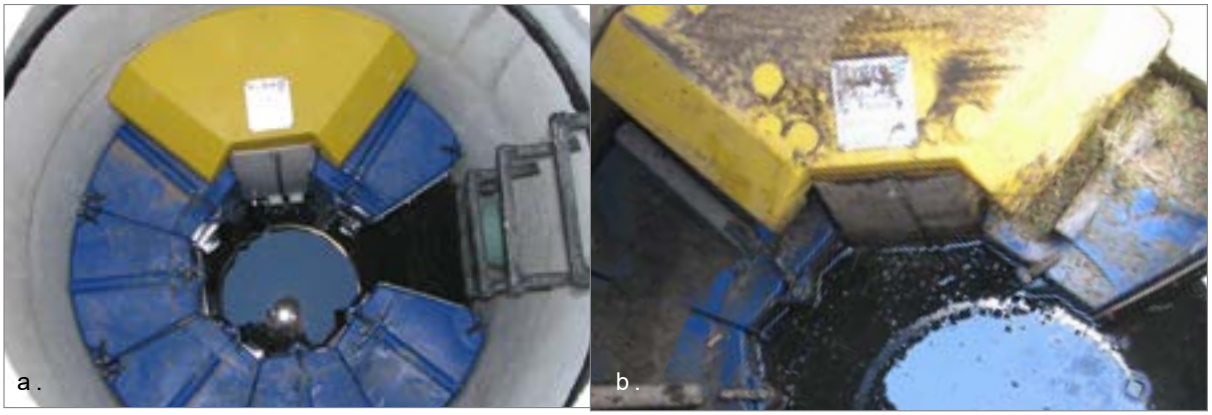


Fig.3 a) The water level in a properly functioning Up-Flo® Filter will drain down to the base of the Filter Modules. b) When the Drain Down Filter becomes clogged, the base of the Filter Modules will be submerged in standing water. Note, above right, that the Drain Down Filter is submerged in standing water.

Inspection & Maintenance

Overview

The Up-Flo® Filter protects the environment by removing a wide range of pollutants from stormwater runoff. Periodic removal of these captured pollutants is essential to the proper functioning of the Up-Flo® Filter.

Maintenance activities can be categorized as those that may be performed from outside the Up-Flo® vessel and those that are performed inside the vessel. Maintenance performed from outside the modules includes removal of floatables and oils that have accumulated on the water surface and removal of sediment from the sump. Maintenance performed inside the vessel includes removal and replacement of Media Bags, Flow Distribution Media and the Drain Down Filter. A vactor truck is required for removal of oils, water, sediment, and to completely pump out the vessel to allow for maintenance inside. If you are not using Hydro Internatioanl or a trained servcie provider you must follow OSHA Confined Space Entry procedures when entering the Up-Flo® vessel.

The Up-Flo® Filter design has a wide central opening between the Filter Modules for easy access to all of the components (see **Fig.3**). In the case of inspection and floatables removal, a vactor truck is not required. Otherwise, a vactor truck is normally required for oil removal, removal of sediment from the sump, and replacement of the Media Packs and Drain Down Filter. In most cases, entry into the Up-Flo® Filter vessel is required for replacement of the Media Packs and Drain Down Filter.

The minimum required frequency for replacement of the Media Pack is annually, whereas the minimum required frequency for removal of accumulated sediment from the sump is dependent on the Up-Flo® Filter configuration. Configurations with a larger sediment storage volume per module will require less frequent removal of accumulated sediment. Regardless, whenever sediment depth in the sump is found to be greater than 16 inches, sediment removal is required.

Fig.4 a) A new Media Bag of Hydro Filter Sand. b) A spent media bag of Hydro Filter Sand.

At a minimum, media bags must be replaced at least once a year.

Make Sure your System was Installed Correctly

First Year Inspection and Maintenance

The frequency of inspection and maintenance can be determined in the field after installation. The frequency of ongoing maintenance needs is based on site characteristics such as contributing area, types of surfaces (e.g., paved and/or landscaped), site activities (e.g., short-term or long-term parking), and other site maintenance (e.g., sanding and sweeping). At a minimum, inspection and maintenance should be conducted at intervals of no more than six months during the first year of operation. Maintenance personnel should observe and record pollutant accumulations during the first year of service in order to benchmark the maintenance intervals that will later be established for the site. Pollutant accumulations should be measured or monitored using the following procedures:

- Measurement of sediment depth in the sump: A minimum of 8 inches (20 cm) should separate the Drain Down Filter inlet from stored sediment in the sump in order to minimize sediment migration into the Drain Down Filter. A simple probe, such as the Sludge-Judge®, can be used to determine the depth of the solids in the sump. In a typical 4-ft (1.2m) diameter manhole installation, the sediment depth should be no more than 16 inches (41 cm).

- Maintenance personnel should then enter the structure, remove the Media Pack from one of the Filter Modules, and weigh the Media Bags. Media Bags with a wet weight of approximately 40 lbs (18 kg) or more are an indication that the filter media has become full and that the Media Packs in all of the Filter Modules will require replacement (Fig.4). Minimum filtration rate is generally reached when the Media Bags have accumulated approximately 20 lbs (9 kg) of sediment. Determining the amount of accumulated sediment will be accomplished by removing both of the Media Bags from one of the Media Packs and weighing the bags separately. Since a new Media Bag weighs approximately 30 lbs (14 kg) wet, the difference in weight will approximately equal the weight of solids that have accumulated in the bag. A spent Media Bag weighs approximately 50 lbs (23 kg) wet.

- Measurement of oil layer on water surface: Since water in the Up-Flo® vessel drains down to an elevation below the bottom of the Filter Modules when the system is idle, the amount of accumulated oil must be minimized so that oil is not entrained in the Media Pack when stormwater begins to fill the vessel at the start of a storm event. Oil accumulation should be limited to 1.5 inches (4 cm) or less. Probes can be used to measure oil thickness.

- Monitoring for Drain Down Filter clogging: The water level in the Up-Flo® Filter should be monitored to ensure that the Drain Down Filter is operating properly. The Drain Down Filter is designed to lower the water level in the Up-Flo® vessel to an elevation below the bottom of the Filter Modules between storm events. Periodically conduct an inspection one to two days after a storm event during the first year of operation. Approximately 36 hours after a 1-in (2.5-cm) rainfall, the water level inside the vessel should have dropped to a point where it is equal with the base of the Filter Modules. If the water level has not reached that point, then the Drain Down Filter has either become clogged or blinded by trash or debris (Fig.5 a and b). If there is no evidence of trash or debris around the Drain Down Filter inlet, then it has likely become clogged with particles.

- Monitoring for slime and debris covering the Flow Distribution Media or Angled Screens: After removal of the Media Bags, the bottom Flow Distribution Media should be removed and inspected to determine if it is coated with slime or debris. Similarly, the Angled Screen should be inspected for blockages and ragging.

Find out how Frequently your System Needs Maintenance

Monitoring for floatables on the water surface: Similar to oil, the amount of accumulated floatables must be minimized to prevent trash and loose debris from becoming trapped on the Angled Screens when stormwater begins to fill the Up-Flo® vessel at the start of a storm event. Visual inspection is adequate to determine the amount of floatables. Floatables should be removed before they form a mat on the surface of the water.

The solids loading rate in the sump will be calculated by measuring the sediment depth in the sump and dividing the depth by the correlating interval of time since the sump was last cleaned. Similarly, starting with fresh Media Bags, the solids loading rate in the Media Packs will be calculated by weighing the Media Bags and dividing the weights by the correlating interval of time since they were installed. The wet weight of the heaviest bag will be used to determine the loading rate. As previously mentioned, a spent Media Bag weighs approximately 50 lbs (23 kg) wet. The spent Media Bag weight estimate was based on calculations of sediment loading in an Up-Flo® Filter that was run to exhaustion during laboratory testing.

The rate of oil accumulation will be calculated by measuring the thickness of the oil layer and dividing the thickness by the correlating interval of time since the sump was last cleaned. Ordinarily, oil thickness will not be measurable unless a spill has occurred. Consequently, any oil will typically be removed along with water when cleaning the sump.

Monitoring the Drain Down Filter for clogging, monitoring the Flow Distribution Media and Angled Screens for slime and debris, and monitoring the accumulation of floatables will provide an estimate of how long the Up-Flo® Filter can operate before its performance can become impaired by one of these factors.

Routine Inspection and Maintenance

After completion of the first year of operation, determining and then following the established inspection and maintenance intervals will keep pollutant loadings within their respective limits. Removal of oils and floatables, replacement of the Drain Down Filter, replacement of Flow Distribution Media (see Fig.9, pg 11), and cleaning of Angled Screens will occur at the same frequency as cleaning of the sump and replacement of Media Bags unless the first year of operation indicates otherwise. Keeping to the established maintenance intervals will keep treatment flow rates at, or above, the design flow rate. Typically, annual maintenance is adequate.

In addition to scheduled maintenance, occasional checks for Up-Flo® Filter clogging can be performed by removing the manhole cover during a storm, monitoring the water level in the manhole or vault, and determining whether the filter is in bypass. A properly-sized filter (on-line or off-line) that is in bypass during a storm that is producing runoff at, or below, the filter's design filtration rate needs maintenance.

Inspection & Maintenance

Routine Inspection

Inspection is a simple process that requires monitoring pollutant accumulations. Maintenance crews should be familiar with the Up-Flo® Filter and its components prior to inspection.

The following instructions are intended for non-Hydro maintenance service providers and/or those intending to maintain thier own Up-Flo® Filter:

Scheduling

- Inspection may be conducted during any season of the year but should occur shortly after a predicted rainfall to ensure components are operating properly.

Necessary Equipment

- Safety Equipment and Personal Protective Equipment (traffic cones, work gloves, etc.)
- Scale to measure the weight of the Media Bags
- Crow bar to remove grate or lid
- Pole with skimmer or net
- Sediment probe (such as a Sludge-Judge®)
- Hydro International Up-Flo® Filter Maintenance Log
- Trash bags for removed floatables

Routine Inspection Procedures

1. Set up any necessary safety equipment (such as traffic cones) to provide access to the Up-Flo® Filter. Safety equipment should notify passing pedestrian and road traffic that work is being done.
2. Remove the grate or lid to the manhole or vault.
3. Without entering the vessel, look down into the chamber to inspect the inside and to determine whether the high-water level indicator has been activated. Make note of any irregularities. See Fig.6 for a typical Inspection View.
4. Without entering the vessel, use the pole with the skimmer net to remove floatables and loose debris from the chamber.
5. Using a sediment probe such as a Sludge-Judge®, measure the depth of sediment that has collected in the sump of the vessel.
   Maximum sediment depth is 16 inches (41 cm).
6. If the high-water level indicator has been activated after two consecutive storms, remove the Filter Module lid by turning the cam latch and remove the Filter Media Pack (*refer to page 11 Replacement Procedures*). Weigh the Media Bags from one or two modules. Media Bags should be replaced if the wet weight exceeds 40 lbs (18 kg).
7. On the Maintenance Log provided by Hydro International, record the date, unit location, estimated volume of floatables and gross debris removed, and the depth of sediment measured. Also note any apparent irregularities such as damaged components or a high standing water level (see Fig.6 for the standard standing water level).
8. Securely replace the grate or lid.
9. Remove safety equipment.
10. Contact Hydro International at (800) 848-2706 to discuss any irregularities noted during inspection.

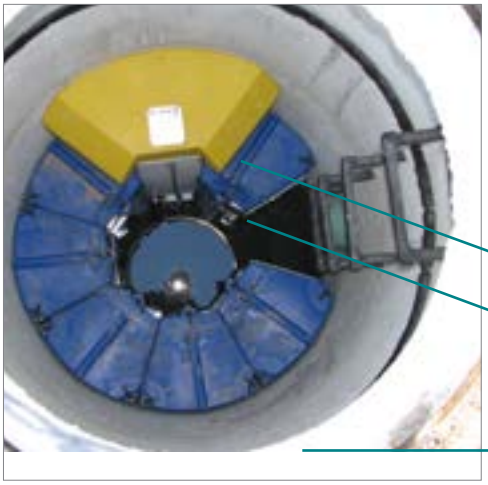


Fig.6 Inspection view of the Up-Flo® Filter.

Routine Maintenance

Maintenance activities are grouped into two categories:

- *Activities **Not Requiring** Man Entry Into the Up-Flo® Filter*
  These activities include floatables removal, oil removal and removal of sediment from the sump.
- *Activities **Requiring** Man Entry Into the Up-Flo® Filter*
  Media Pack replacement and Drain Down Filter replacement.

Maintenance intervals are determined from monitoring the Up-Flo® Filter during its first year of operation. Depending on the site, some maintenance activities may have to be performed on a more frequent basis than others. In the case of floatables removal, a vactor truck is not required. Floatables and loose debris can be netted with a skimmer and pole.

A vactor truck is normally required for oil removal, removal of sediment from the sump, and to dewater the vessel for replacement of the Media Packs and Drain Down Filter (Fig.7). All inspection and maintenance activities would be recorded in an Inspection and Maintenance Log.

Completion of all the maintenance activities for a typical 4-ft (1.2m) diameter manhole installation takes less than one hour. Approximately 360 gallons of water and up to 0.6 yd^3 (0.5 m^3) of sediment may be removed in the process. In an installation equipped with six Filter Modules, 12 Media Bags (2 bags per module) would be removed and replaced. Assuming a spent Media Bag weight of 50 lbs (23 kg), up to 600 lbs (272 kg) of spent Media Bags would be removed. All consumables, including Media Bags, Flow Distribution Media, and replacement Drain Down Filters are supplied by Hydro International.

The access port located at the top of the manhole provides unobstructed access for a vactor hose and/or skimmer pole to be lowered to the base of the sump.

Maintenance Activities Not Requiring Man Entry

These activities include floatables removal, oil removal and removal of sediment from the sump.

Scheduling

- Floatables and sump cleanout may typically be done during any season of the year - before and after rainy season
- Floatables and sump cleanout should occur as soon as possible following a contaminated spill in the contributing drainage area

Recommended Equipment

- Safety Equipment (traffic cones, etc)
- Crow bar to remove grate or lid
- Pole with skimmer or net (if only floatables are being removed)
- Sediment probe (such as a Sludge-Judge®)
- Vactor truck (flexible hose preferred)
- Pressure nozzle attachment or other screen-cleaning device

Fig.7 Sediment is removed from the sump with a vactor hose. Man entry is not required for this step.

No Man Entry Required: Floatables, Oil and Sediment:

1. Set up any necessary safety equipment (such as traffic cones) around the access of the Up-Flo® Filter. Safety equipment should notify passing pedestrian and road traffic that work is being done.

2. Remove the grate or lid to the manhole or vault.

3. Without entering the vessel, look down into the chamber to inspect the inside. Make note of any irregularities.

4. If the standing water level in the sump is above the base of the Filter Modules (see Fig.8), tug the Pull Chain(s) to release the Drain Down Filter plug(s). Allow the excess water to drain out of the chamber.

5. Use the skimmer pole to fit the Drain Down Filter plug back into the open port.

6. Once all floatables and oil have been removed, drop the vactor hose to the base of the sump. Vactor out the sediment and gross debris from the sump floor. Up to 0.3 yd^3 (0.2 m^3) of sediment and 360 gallons (1,363 L) of water will be removed from a typical manhole Up-Flo® Filter during this process.

7. Retract the vactor hose from the vessel.

8. Inspect the Angled Screens for blockages and ragging. If present, remove the obstruction or ragging materials from the surface using a hose or other screen-cleaning device.

9. On the Maintenance Log provided by Hydro International, record the date, unit location, estimated volume of floatables, oils, and gross debris removed, and the depth of sediment measured. Note any apparent irregularities such as damaged components or blockages.

10. Securely replace the grate or lid. Remove safety equipment.

11. Dispose of sediment and gross debris following local regulations.

12. Dispose of oil and sump water at a licensed water treatment facility or following local regulations.

13. Contact Hydro International at (800) 848-2706 to discuss any irregularities noted during cleanout.

Maintenance Activities Requiring Man Entry

These activities include replacement of the Media Packs and Drain Down Filter.

Unless the Up-Flo® Filter has been installed as a very shallow unit, it is necessary to have an OSHA-confined space entry trained person enter the vessel to replace Media Packs.

The access port located at the top of the manhole or vault provides access to the Up-Flo® vessel for maintenance personnel to enter the vessel and remove and replace Media Packs. The same access would be used for maintenance personnel working from the surface to net or skim debris and floatables or to vactor out sediment, oil, and water. Unless the Up-Flo® Filter has been installed in a very shallow configuration, it is necessary to have personnel with OSHA Confined Space Entry training performing the maintenance that occurs inside the vessel.

Scheduling

- Call Hydro International to order replacement Media Packs and Drain Down Filter prior to scheduling maintenance.

- Because Media Pack replacement requires entry into the Up-Flo® chamber, maintenance events should be scheduled during dry weather.

- Media Pack replacement should occur immediately after a contaminated spill in the contributing drainage area.

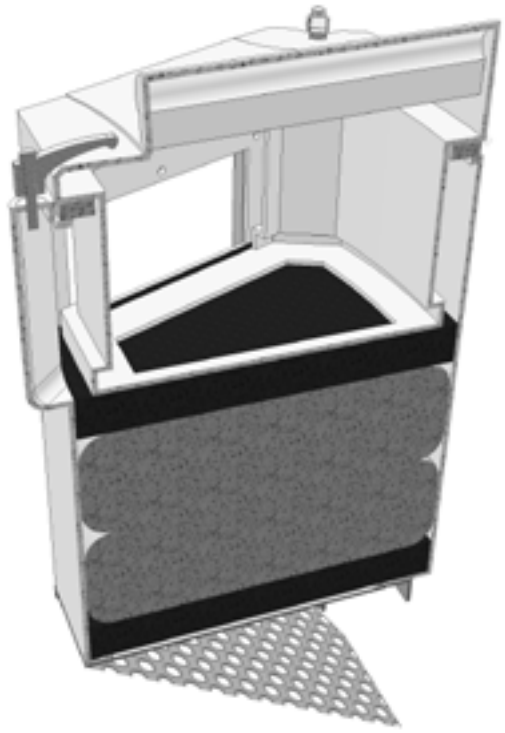


Fig.8 Cutaway view of the Filter Module

Recommended Equipment

- Safety Equipment (traffic cones, etc.)
- Crow bar to remove grate or lid
- Pole with skimmer or net (if floatables removal is not to be done with vactor hose)
- Sediment probe (such as a Sludge-Judge®)
- Vactor truck (flexible hose preferred)
- OSHA Confined Space Entry Equipment
- Up-Flo® Filter Replacement Media Packs (available from Hydro International)
- Hydro International Up-Flo® Filter Maintenance Log
- Screwdriver (flat head)
- Replacement Drain Down Filter components supplied by Hydro International

Man Entry Required: Media Pack and Drain Down Filter

1. Follow Floatables and Sump Cleanout Procedures, 1 – 13.
2. Following OSHA Confined Space Entry procedures, enter the Up-Flo® Filter Chamber.
3. Open the Filter Module by turning the three cam latches on the front and sides of the module. Remove the lid (1) to gain access to the Media Pack (Fig.9).
4. Remove and discard the spent Media Pack. The Media Pack contents include:
    - A top layer of (A) Flow Distributing Sheets
    - Two (2) Media Bags (B) equipped with nylon handles.
    - A bottom layer of (A) Flow Distributing Media.
5. Insert a new Media Pack, supplied by Hydro International.
    - First, insert a bottom layer of green Flow Distributing Media. Be sure that the media sits snugly and level at the bottom of the Filter Module.
    - Next, insert the first of two (2) replacement Media Bags. Smooth the bag out with your hands to make sure that the bag extends snugly to the walls and corners of the Filter Module.
    - Insert the second Media Bag, following the same procedure.
    - Insert the top layer of green Flow Distributing Media.

1. Filter Module Cover and Media Restraint

2. Replaceable Media Pack:
    a) Flow distribution sheets
    b) Filter Media Bags

3. Cam Latch

4. Conveyance Channel

5. Filter Module

6. Support Bracket / Angled Screen

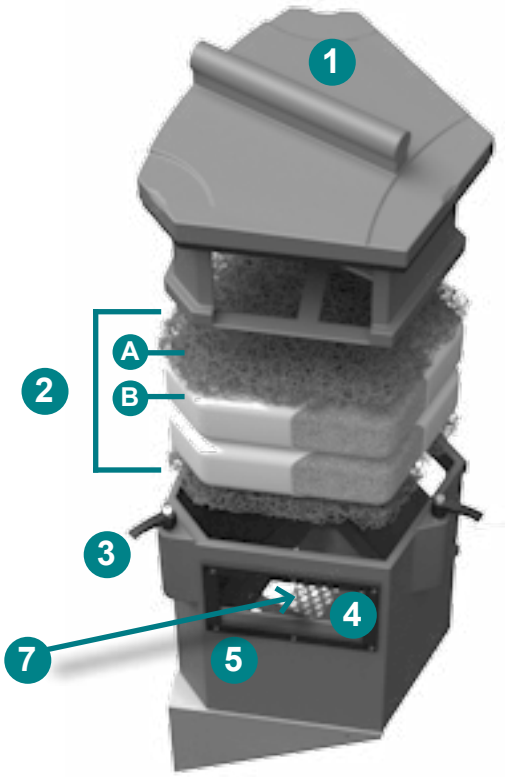


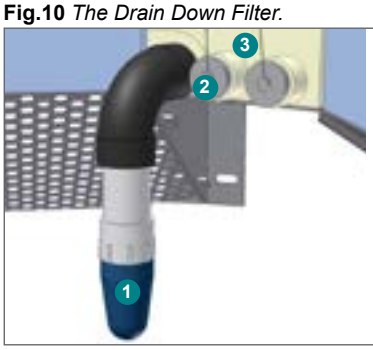
Fig.9 The Filter Module houses the Media Restraint and the Media Pack.

Be sure that the piece fits snugly against the walls and corners of the Filter Module.

- Put the lid on and secure the three latches. Check to make sure that the latches are closed properly.

6. Use a screwdriver to unscrew the Drain Down Filter from the face of the Outlet Module (see Fig.10). DO NOT DISCARD THIS PIECE.
7. Install new Drain Down Filter supplied by Hydro International.
8. Exit the Up-Flo® Filter chamber and securely replace the grate __or lid.
9. On the Maintenance Log provided by Hydro International, record the date, unit location, estimated volume of floatables, oil and gross debris removed, and the depth of sediment measured. Note the number of Media Packs replaced. Note any irregularities such as damaged components or blockages.

Fig.10 *The Drain Down Filter.*



1. Drain Down Filter
2. Drain Down Plug
3. Pull Chain for Drain Down

10. Remove safety equipment.
11. Dispose of spent media packs at your local landfill, following local regulations.
12. Return the spent Drain Down Filter to Hydro International.
13. Contact Hydro International to discuss any irregularities noted during annual maintenance.

Solids Disposal

Sediment, floatables, gross debris, and spent Media Bags can generally be disposed of at the local landfill in accordance with local regulations. The toxicity of the residues captured will depend on the activities in the contributing drainage area, and testing of the residues may be required if they are considered potentially hazardous.

Sump water can generally be disposed of at a licensed water treatment facility but the local sewer authority should be contacted for permission prior to discharging the liquid. Significant accumulations of oil removed separately from sump water should be transported to a licensed hazardous waste treatment facility for treatment or disposal. **In all cases, local regulators should be contacted about disposal requirements.**

Maintenance at a Glance

Activity	Frequency
Inspection	- Regularly during first year of installation - Every 6 months after the first year of installation
Floatables/Oils Removal	- Twice per year or as needed - Following a contaminated spill in the drainage area
Sediment Removal	- Every six to 12 months, depending on the Up-Flo® Filter Configuration - The maximum allowable sediment depth in any Up-Flo Filter configuration is 16 inches (41 cm) - Following a contaminated spill in the drainage area
Media Pack Replacement	- Once per year - Replacement is required anytime inspection reveals that the high-water level indicator has been activated after two consecutive storms and the subsequent weighing of the Media Bags shows a wet weight greater than 40 lbs - Following a contaminated spill in the drainage area
Drain Down Filter Replacement	- Once per year with Media Pack replacement - Replacement is required anytime inspection reveals that the water level inside the vessel has not reached a level equal with the base of the Filter Modules approximately 36 hours after a 1-inch (2.5 cm) rainfall - As needed, in the event of continuous base flow conditions

Up-Flo® Filter Installation Log

SITE REFERENCE NAME OR NUMBER FOR THIS UP-FLO® FILTER LOCATION:	
SITE NAME:	
SITE LOCATION:	
OWNER:	**SITE CONTRACTOR:**
CONTACT NAME:	**CONTACT NAME:**
COMPANY NAME:	**COMPANY NAME:**
ADDRESS:	**ADDRESS:**
TELEPHONE:	**TELEPHONE:**
FAX:	**FAX:**

INSTALLATION DATE: / /

CONFIGURATION (CIRCLE ONE): **MANHOLE** **VAULT SYSTEM**

TOTAL NUMBER OF UP-FLO® FILTER MODULES: _____

Hydro International (Stormwater), 94 Hutchins Drive, Portland ME 04102
Tel: (207) 756-6200 Fax: (207) 756-6212 Web: www.hydro-int.com

Up-Flo® Filter Inspection Log

Site Name: _____ Owner Change since last inspection? Y N

Location: _____

Owner Name: _____

Address: _____ Phone Number: _____

Site Status: _____

Date: _____ Time: _____ Site conditions*: _____

(Stable, Under Construction, Needing Maintenance, etc.)

Inspection Frequency Key: A=annual; M=monthly; S=after major storms

Inspection Items	Inspection Frequency	Inspected? (Yes/No)	Maintenance Needed? (Yes/No)	Comments/Description
Debris Removal				
Adjacent area free of debris?	M			
Inlets and Outlets free of debris?	M			
Facility (internally) free of debris?	M			
Vegetation				
Surrounding area fully stabilized? (no evidence of eroding material into Up-Flo® Filter)	A			
Grass mowed?	M			
Water retention where required				
Water holding chamber(s) at normal pool?	A			
Evidence of erosion?	A			
Sediment Deposition				
Filtration Chamber free of sediments?	A			
Sedimentation sump not more than 50% full?	A			
Structural Components				
Any evidence of structural deterioration?	A			
Grates in good condition?	A			
Spalling or cracking of structural parts?	A			
Outlet/Overflow Spillway	A			
Other				
Noticeable odors?	A			
Any evidence of filter(s) clogging?	M			
Evidence of flow bypassing facility?	A			

Inspector Comments: _____

_____

_____

_____

Overall Condition of Up-Flo® Filter**: ☐ Acceptable ☐ Unacceptable

***"Acceptable" would mean properly functioning; "unacceptable" would mean damaged or required further maintenance.*

If any of the above Inspection Items are checked "Yes" for "Maintenance Needed", list Maintenance actions and their completion dates below or on the Maintenance Log provided on page 15 of the Up-Flo® Filter Operation & Maintenance Manual:

Maintenance Action Needed	Due Date

The next routine inspection is schedule for approximately: (date) _____

Inspected by: (signature) _____

Inspected by: (printed) _____

Up-Flo® Filter Maintenance Log

Site Name: _____ Owner Change since last inspection? Y N

Location: _____

Owner Name: _____

Address: _____ Phone Number: _____

Site Status: _____

Date: _____ Time: _____ Site conditions: _____
**(Stable, Under Construction, Needing Maintenance, etc.)*

Estimated volume of oil/floatable trash removed: _____

Sediment depth measured in sump prior to removal: _____

Number of Filter Modules fitted with new media packs: _____

Inspector Comments: _____

_____

_____

_____

Overall Condition of Up-Flo® Filter: ☐ Acceptable ☐ Unacceptable
***"Acceptable" would mean properly functioning; "unacceptable" would mean damaged or required further maintenance.*

Maintained by: (signature) _____

Maintained by: (printed) _____

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ORGANIZED SEWAGE COLLECTION SYSTEM APPLICATION

TCEQ-0582

Organized Sewage Collection System Application

Texas Commission on Environmental Quality

For Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(c), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Regulated Entity Name: EAGLES NEST 3

1. ☒ **Attachment A – SCS Engineering Design Report**. This Engineering Design Report is provided to fulfill the requirements of 30 TAC Chapter 217, including 217.10 of Subchapter A, §§217.51 – 217.70 of Subchapter C, and Subchapter D as applicable, and is required to be submitted with this SCS Application Form.

Customer Information

2. The entity and contact person responsible for providing the required engineering certification of testing for this sewage collection system upon completion (including private service connections) and every five years thereafter to the appropriate TCEQ region office pursuant to 30 TAC §213.5(c) is:

   Contact Person: KEN WHEELER
   Entity: CHANDLER CREEK PARCEL J&K LP
   Mailing Address: 260 E. BAKER STREET, STE 100
   City, State: COSTA MESA, CA Zip: 92626
   Telephone: 714.824.6011 Fax: 714.824.6001
   Email Address: KEN@BURKEGROUP.NET
   The appropriate regional office must be informed of any changes in this information within 30 days of the change.

3. The engineer responsible for the design of this sewage collection system is:

   Contact Person: TERRY HAGOOD
   Texas Licensed Professional Engineer's Number: 52960
   Entity: HAGOOD ENGINEERING ASSOCIATES, INC.
   Mailing Address: 900 E. MAIN STREET
   City, State:ROUND ROCK, TX Zip: 78664
   Telephone:512.244.1546 Fax:N/A
   Email Address:TERRYH@HEAENG.COM

Project Information

4. Anticipated type of development to be served (estimated future population to be served, plus adequate allowance for institutional and commercial flows):

   ☐ Residential: Number of single-family lots: _____
   ☐ Multi-family: Number of residential units: _____
   ☒ Commercial
   ☐ Industrial
   ☐ Off-site system (not associated with any development)
   ☐ Other: _____

5. The character and volume of wastewater is shown below:

   100% Domestic _____ gallons/day
   _____% Industrial _____ gallons/day
   _____% Commingled _____ gallons/day

   Total gallons/day: 15750

6. Existing and anticipated infiltration/inflow is 0 gallons/day. This will be addressed by: _____.

7. A Water Pollution Abatement Plan (WPAP) is required for construction of any associated commercial, industrial or residential project located on the Recharge Zone.

   ☐ The WPAP application for this development was approved by letter dated _____. A copy of the approval letter is attached.
   ☒ The WPAP application for this development was submitted to the TCEQ on December 5, 2022, but has not been approved.
   ☐ A WPAP application is required for an associated project, but it has not been submitted.
   ☐ There is no associated project requiring a WPAP application.

8. Pipe description:

Table 1 - Pipe Description

Pipe Diameter(Inches)	*Linear Feet (1)*	*Pipe Material (2)*	*Specifications (3)*
8	872.74	PVC SDR 26	ASTM D2241

Total Linear Feet: 872.74

(1) Linear feet - Include stub-outs and double service connections. Do not include private service laterals.
(2) Pipe Material - If PVC, state SDR value.
(3) Specifications - ASTM / ANSI / AWWA specification and class numbers should be included.

9. The sewage collection system will convey the wastewater to the BRUSHY CREEK wcid REGIONAL WASTEWATER (name) Treatment Plant. The treatment facility is:

   ☒ Existing
   ☐ Proposed

10. All components of this sewage collection system will comply with:

   ☒ The City of Round Rock standard specifications.
   ☐ Other. Specifications are attached.

11. ☒ No force main(s) and/or lift station(s) are associated with this sewage collection system.

   ☐ A force main(s) and/or lift station(s) is associated with this sewage collection system and the **Lift Station/Force Main System Application** form (TCEQ-0624) is included with this application.

Alignment

12. ☒ There are no deviations from uniform grade in this sewage collection system without manholes and with open cut construction.

13. ☒ There are no deviations from straight alignment in this sewage collection system without manholes.

   ☐ **Attachment B - Justification and Calculations for Deviation in Straight Alignment without Manholes**. A justification for deviations from straight alignment in this sewage collection system without manholes with documentation from pipe manufacturer allowing pipe curvature is attached.

   ☐ For curved sewer lines, all curved sewer line notes (TCEQ-0596) are included on the construction plans for the wastewater collection system.

Manholes and Cleanouts

14. ☒ Manholes or clean-outs exist at the end of each sewer line(s). These locations are listed below: (Please attach additional sheet if necessary)

Table 2 - Manholes and Cleanouts

Line	*Shown on Sheet*	*Station*	*Manhole or Clean-out?*
A	28 Of 63	0+00	Manhole
A	28 Of 63	0+45.66	Manhole
A	28 Of 63	0+90.99	MANHOLE
A	28 Of 63	2+46.60	MANHOLE
A	28 Of 63	4+50.09	MANHOLE
A	28 Of 63	6+28.58	MANHOLE
A	28 Of 63	7+25.71	CLEANOUT

Line	*Shown on Sheet*	*Station*	*Manhole or Clean-out?*
A-1	28 Of 68	0+45.28	CLEANOUT
A-2	28 Of 68	0+52.13	CLEANOUT
B	28 Of 68	0+00	MANHOLE

15. ☒ Manholes are installed at all Points of Curvature and Points of Termination of a sewer line.

16. ☒ The maximum spacing between manholes on this project for each pipe diameter is no greater than:

Pipe Diameter (inches)	Max. Manhole Spacing (feet)
6 - 15	500
16 - 30	800
36 - 48	1000
≥54	2000

☐ **Attachment C – Justification for Variance from Maximum Manhole Spacing**. The maximum spacing between manholes on this project (for each pipe diameter used) is greater than listed in the table above. A justification for any variance from the maximum spacing is attached, and must include a letter from the entity which will operate and maintain the system stating that it has the capability to maintain lines with manhole spacing greater than the allowed spacing.

17. ☐ All manholes will be monolithic, cast-in-place concrete.

☒ The use of pre-cast manholes is requested for this project. The manufacturer's specifications and construction drawings, showing the method of sealing the joints, are attached.

Site Plan Requirements

Items 18 - 25 must be included on the Site Plan.

18. ☒ The Site Plan must have a minimum scale of 1" = 400'.

Site Plan Scale: 1" = _____'.

19. ☒ The Site Plan must include the sewage collection system general layout, including manholes with station numbers, and sewer pipe stub outs (if any). Site plan must be overlain by topographic contour lines, using a contour interval of not greater than ten feet and showing the area within both the five-year floodplain and the 100-year floodplain of any drainage way.

20. Lateral stub-outs:

☒ The location of all lateral stub-outs are shown and labeled.
☐ No lateral stub-outs will be installed during the construction of this sewer collection system.

21. Location of existing and proposed water lines:

☒ The entire water distribution system for this project is shown and labeled.
☐ If not shown on the Site Plan, a Utility Plan is provided showing the entire water and sewer systems.
☐ There will be no water lines associated with this project.

22. 100-year floodplain:

☒ After construction is complete, no part of this project will be in or cross a 100-year floodplain, either naturally occurring or manmade. (Do not include streets or concrete-lined channels constructed above of sewer lines.)
☐ After construction is complete, all sections located within the 100-year floodplain will have water-tight manholes. These locations are listed in the table below and are shown and labeled on the Site Plan. (Do not include streets or concrete-lined channels constructed above sewer lines.)

Table 3 - 100-Year Floodplain

Line	*Sheet*	*Station*
	of	to
	of	to
	of	to
	of	to

23. 5-year floodplain:

☒ After construction is complete, no part of this project will be in or cross a 5-year floodplain, either naturally occurring or man-made. (Do not include streets or concrete-lined channels constructed above sewer lines.)
☐ After construction is complete, all sections located within the 5-year floodplain will be encased in concrete or capped with concrete. These locations are listed in the table below and are shown and labeled on the Site Plan. (Do not include streets or concrete-lined channels constructed above sewer lines.)

Table 4 - 5-Year Floodplain

Line	*Sheet*	*Station*
	of	to
	of	to
	of	to
	of	to

24. ☒ Legal boundaries of the site are shown.

25. ☒ The ***final plans and technical specifications*** are submitted for the TCEQ's review. Each sheet of the construction plans and specifications are dated, signed, and sealed by the Texas Licensed Professional Engineer responsible for the design on each sheet.

Items 26 - 33 must be included on the Plan and Profile sheets.

26. ☒ All existing or proposed water line crossings and any parallel water lines within 9 feet of sewer lines are listed in the table below. These lines must have the type of pressure rated pipe to be installed shown on the plan and profile sheets. Any request for a variance from the required pressure rated piping at crossings must include a variance approval from 30 TAC Chapter 290.

☐ There will be no water line crossings.
☐ There will be no water lines within 9 feet of proposed sewer lines.

Table 5 - Water Line Crossings

Line	*Station or Closest Point*	*Crossing or Parallel*	*Horizontal Separation Distance*	*Vertical Separation Distance*
A	1+07.38	CROSSING	n/a	
A	2+61.60	CROSSING	n/a	
A	5+62.09	CROSSING	n/a	
A	6+43.58	CROSSING	n/a	
A	0+15.00	CROSSING	n/a	
B	2+33.70	CROSSING	n/a	
B	2+54.70	CROSSING	n/a	

27. Vented Manholes:

☒ **No part** of this sewer line is within the 100-year floodplain and vented manholes are not required by 30 TAC Chapter 217.
☐ **A portion** of this sewer line is within the 100-year floodplain and vented manholes will be provided at less than 1500 foot intervals. These water-tight manholes are listed in the table below and labeled on the appropriate profile sheets.
☐ **A portion** of this sewer line is within the 100-year floodplain and an alternative means of venting shall be provided at less than 1500 feet intervals. A description of the alternative means is described on the following page.
☐ **A portion** of this sewer line is within the 100-year floodplain; however, there is no interval longer than 1500 feet located within. No vented manholes will be used.

Table 6 - Vented Manholes

Line	*Manhole*	*Station*	*Sheet*

Line	*Manhole*	*Station*	*Sheet*

28. Drop manholes:

☐ There are no drop manholes associated with this project.
☒ Sewer lines which enter new or existing manholes or "manhole structures" higher than 24 inches above the manhole invert are listed in the table below and labeled on the appropriate profile sheets. These lines meet the requirements of 30 TAC §217.55(l)(2)(H).

Table 7 - Drop Manholes

Line	*Manhole*	*Station*	*Sheet*
B	DROP	0+16.51	28

29. Sewer line stub-outs (For proposed extensions):

☐ The placement and markings of all sewer line stub-outs are shown and labeled.
☒ No sewer line stub-outs are to be installed during the construction of this sewage collection system.

30. Lateral stub-outs (For proposed private service connections):

☐ The placement and markings of all lateral stub-outs are shown and labeled.
☒ No lateral stub-outs are to be installed during the construction of this sewage collection system.

31. Minimum flow velocity (From Appendix A)

☒ Assuming pipes are flowing full; all slopes are designed to produce flows equal to or greater than 2.0 feet per second for this system/line.

32. Maximum flow velocity/slopes (From Appendix A)

☒ Assuming pipes are flowing full, all slopes are designed to produce maximum flows of less than or equal to 10 feet per second for this system/line.
☐ **Attachment D – Calculations for Slopes for Flows Greater Than 10.0 Feet per Second.** Assuming pipes are flowing full, some slopes produce flows which are greater than 10 feet per second. These locations are listed in the table below. Calculations are attached.

Table 8 - Flows Greater Than 10 Feet per Second

Line	*Profile Sheet*	*Station to Station*	*FPS*	*% Slope*	*Erosion/Shock Protection*

33. Assuming pipes are flowing full, where flows are ≥ 10 feet per second, the provisions noted below have been made to protect against pipe displacement by erosion and/or shock under 30 TAC §217.53(l)(2)(B).

☐ Concrete encasement shown on appropriate Plan and Profile sheets for the locations listed in the table above.
☐ Steel-reinforced, anchored concrete baffles/retards placed every 50 feet shown on appropriate Plan and Profile sheets for the locations listed in the table above.
☒ N/A

Administrative Information

34. ☒ The final plans and technical specifications are submitted for TCEQ review. Each sheet of the construction plans and specifications are dated, signed, and sealed by the Texas Licensed Professional Engineer responsible for the design on each sheet.

35. ☒ Standard details are shown on the detail sheets, which are dated, signed, and sealed by the Texas Licensed Professional Engineer, as listed in the table below:

Table 9 - Standard Details

Standard Details	*Shown on Sheet*
Lateral stub-out marking **[Required]**	62 of 64
Manhole, showing inverts comply with 30 TAC §217.55(l)(2) **[Required]**	62 of 64
Alternate method of joining lateral to existing SCS line for potential future connections **[Required]**	62 of 64
Typical trench cross-sections **[Required]**	64 of 64
Bolted manholes **[Required]**	64 of 64
Sewer Service lateral standard details **[Required]**	62 of 64
Clean-out at end of line **[Required, if used]**	62 of 64
Baffles or concrete encasement for shock/erosion protection **[Required, if flow velocity of any section of pipe >10 fps]**	n/a of
Detail showing Wastewater Line/Water Line Crossing **[Required, if crossings are proposed]**	64 of 64
Mandrel detail or specifications showing compliance with 30 TAC §217.57(b) and (c) **[Required, if Flexible Pipe is used]**	62 of 64

Standard Details	*Shown on Sheet*
Drop manholes **[Required, if a pipe entering a manhole is more than 24 inches above manhole invert]**	n/a of

36. ☒ All organized sewage collection system general construction notes (TCEQ-0596) are included on the construction plans for this sewage collection system.

37. ☒ All proposed sewer lines will be sufficiently surveyed/staked to allow an assessment prior to TCEQ executive director approval. If the alignments of the proposed sewer lines are not walkable on that date, the application will be deemed incomplete and returned.

    ☐ Survey staking was completed on this date: _____

38. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

39. ☒ Any modification of this SCS application will require TCEQ approval, prior to construction, and may require submission of a revised application, with appropriate fees.

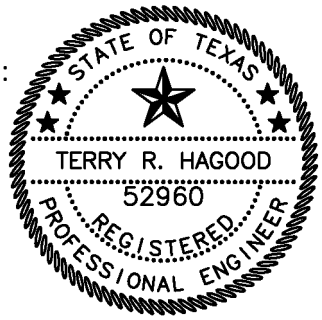
Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Organized Sewage Collection System Application** is hereby submitted for TCEQ review and executive director approval. The system was designed in accordance with the requirements of 30 TAC §213.5(c) and 30 TAC §217 and prepared by:

Print Name of Licensed Professional Engineer: TERRY HAGOOD

Date: 04/30/2023

Place engineer's seal here:



Signature of Licensed Professional Engineer:

Appendix A-Flow Velocity Table

Flow Velocity (Flowing Full) All gravity sewer lines on the Edwards Aquifer Recharge Zone shall be designed and constructed with hydraulic slopes sufficient to give a velocity when flowing full of not less than 2.0 feet per second, and not greater than 10 feet per second. The grades shown in the following table are based on Manning's formula and an n factor of 0.013 and shall be the minimum and maximum acceptable slopes unless provisions are made otherwise.

Table 10 - Slope Velocity

Pipe Diameter(Inches)	*% Slope required for minimum flow velocity of 2.0 fps*	*% Slope which produces flow velocity of 10.0 fps*
6	0.50	12.35
8	0.33	8.40
10	0.25	6.23
12	0.20	4.88
15	0.15	3.62
18	0.11	2.83
21	0.09	2.30
24	0.08	1.93
27	0.06	1.65
30	0.055	1.43
33	0.05	1.26
36	0.045	1.12
39	0.04	1.01
>39	*	*

**For lines larger than 39 inches in diameter, the slope may be determined by Manning's formula (as shown below) to maintain a minimum velocity greater than 2.0 feet per second when flowing full and a maximum velocity less than 10 feet per second when flowing full.*

$$v = \frac{1.49}{n} \times R_h^{0.67} \times \sqrt{S}$$

Figure 1 - Manning's Formula

Where:

v = velocity (ft/sec)
n = Manning's roughness coefficient (0.013)
Rh = hydraulic radius (ft)
S = slope (ft/ft)

TABLE 2 - Manholes and Cleanouts			
Line	Shown on Sheet	Station	Manhole or Cleanout?
B	28 of 68	1+83.94	MANHOLE
B	28 of 68	2+44.20	MANHOLE
B	28 of 68	4+21.92	MANHOLE
B	28 of 68	4+7.25	CLEANOUT
B-1	28 of 68	2+15.81	CLEANOUT

Sewage Collection System

Detailed Engineering Design Report

Chandler Creek Eagles Nest 3

Submitted to:

Texas Commission on Environmental Quality

Region 11 Office

12100 Park 35 Circle

Building A

Room 179

Austin, TX 78753

(512) 339-2929

APRIL 2023

This engineering design report is intended to fulfil the requirements set for in 30 TAC Chapter 217, including Chapter 217.10 of Subchapter A (Administrative Requirements) and §§217.51-217.70 of Subchapter C (Conventional Collection Systems). Subchapter D (Alternative Collection Systems) is not applicable for this report.

Site Location

The 13.873 acre site is located approximately 0.2 miles west of the intersection of Cypress Blvd. and Sunrise Road in Round Rock, TX. The project site and service area is indicated on the construction plans accompanying the SCS submittal information. The topography of the site is generally towards the south/southwest. The entire site is located within the Edwards Aquifer Recharge Zone. There are no natural or manmade features observed on the project site, as indicated on the Geologic Assessment Table.

Design Flow Determination

The wastewater flows from this site will be domestic in nature and will be discharged from commercial buildings. The area is often referred to as an industrial park; however, the wastewater flows will not be industrial waste and will not require additional processing.

The average dry weather flow is based upon a generally accepted design of 15 gallons per person day; based upon an occupancy of 100 square feet of office space. This project will include four buildings and the flows are calculated as follows:

Building	Warehouse (s.f.)	Office (s.f.)	Total (s.f.)	People	WW Flow (gpd)
K.6	9600	28,800	38,400	288	4320
K.7	38400	38,400	76,800	384	5760
K.8	7200	21,600	28,800	216	3240
K.9	5400	16,200	21,600	162	2430
TOTAL	**60600**	**105,000**	**165,600**	**1050**	**15750**

Additionally, the City of Round Rock Utility Criteria Manual indicates that in sizing sewers, external contributions are accounted for by including 750 gallons per acre per day served for inflow and infiltration. The dry weather peaking factor used is 4. For this project, the average dry weather flow is 10.94 gpm. The peak dry weather flow is 43.75 gpm. Peak wet weather flow (including inflow and infiltration is 50.67 gpm. The expected maximum and minimum velocities in the system for each slope of pipe are contained in the Appendix of this report.

The aforementioned flows are expected in the pipes immediately following construction completion and are not expected to increase at the end of its 50-year life. Additionally, odor control measures are not necessary in this system.

The capacity of the existing system will be reviewed and approved by the City of Round Rock. The proposed system will tie into the existing infrastructure in Cypress Blvd. The system will not require a force main and will gravity flow into the existing wastewater manhole, just outside of the northwest corner of the property boundary. The trunk interceptor will flow to the Brushy Creek Regional Wastewater Treatment Plant (BCWWTP).

The proposed system is new construction and therefore, no existing inflow and infiltration has been accounted for. The manhole joints will be sealed with non-shrink grout in order to minimize possible inflow and infiltration. Raven 405 will coat the inside of the manhole for corrosion resistance.

Pipe Design

The wastewater collection system has been designed to handle the transport of the peak dry weather flow from the service area, plus the inflow and infiltration as discussed above. The pipe is an 8" SDR-26 PVC pipe with grades from 0.40% to 1.00%. The total line, not including service laterals, is 1,212 feet long. The pipe can be seen in plan and profile in the construction drawings accompanying this report and the TCEQ Form 0582 (Organized Sewage Collection System Application).

The wastewater pipe specified is an 8" SDR-26 PVC Pipe conforming to ASTM D2241. The 8" diameter pipe has an outside diameter of 8.625 inches, inside diameter of 7.921 inches, wall thickness of 0.332 inches. The permissible slopes within the Edwards Aquifer Recharge Zone, according to Appendix A of the SCS application are 0.33% to 8.40%. The velocity at the minimum and maximum slopes with the pipe flowing full is approximately 2 fps and 10 fps, respectively.

The detailed design of the pipe has taken the following into account: the characteristic of the wastewater conveyed, the possibility of septic conditions, the possibility of external forces, and the possibility of groundwater, internal pressure and the abrasion and corrosion resistance of the pipe material.

The pipe joints will be installed in accordance with ASTM D3034. The separation distance for all points where a wastewater or force main line crosses a public water supply or service are:

- Vertical separation must be at least 6" from encasement pipe and the waterline (in accordance with §290.44(e)(4)(B)(iv)(III).
- Wastewater pipe has a minimum pressure rating of 150 PSI
- Placed in an 18" encasement centered on the crossing, sealed at both ends with cement or non-shrink grout or manufactured seal at least two sizes larger and supported by spacers at 5 foot intervals.

For wastewater or force main lines that parallel public water services:

- Vertical separation must be at least two feet from outside diameter of pipe
- Horizontal separation must be 4 feet from outside diameters of pipe
- Wastewater or force main lines must be below water lines.

Details for these crossings are noted on plan sheet C60.

This system will not be within 50 feet of an active fault. Refer to the geologic assessment contained within the SCS application packet for all geologic features pertaining to this site.

The manholes are in compliance with §217.55 of the TAC. Manholes are located at all points of change in alignment, grade and/or size and at all intersections of pipes. There are no clean-outs associated with this system. The maximum spacing of the manholes is less than the 500 feet allowed in 30 TAC §217.55(g) Table C.2. There will be no tunnels associated with this project. The manhole specifications and construction drawings are located in the plan sheets. The method of sealing the joints is depicted on drawing no. WW-01, on the detail sheet.

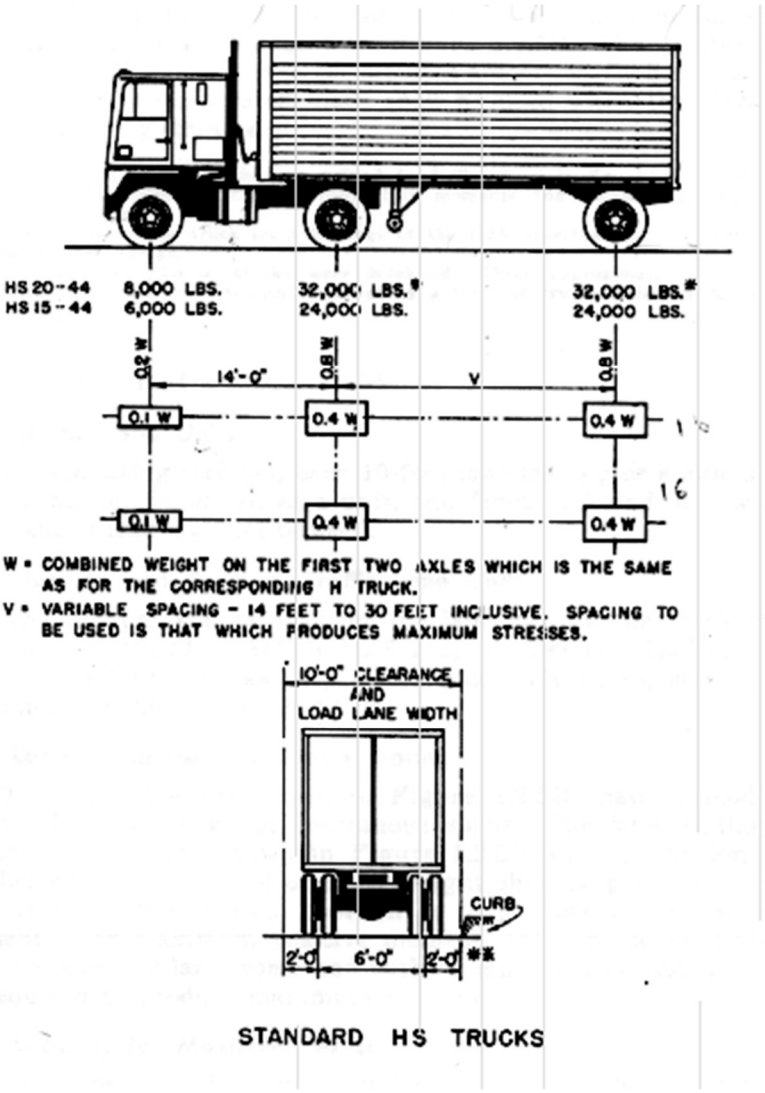
Structural Analysis

The SDR-26 PVC Pipe is a flexible conduit that takes advantage of the support capacity of the surrounding earth by transferring a major portion of the load directly to it. Deflection of the pipe varies with stiffness, class and density of the soil, degree of compaction, burial depth and live load.

The sewer pipe will be placed in an excavated trench and subsequently backfilled. The details of the trench can be found on the accompanying construction plans on the detail sheet. Watertight, size on size resilient connectors conforming to ASTM C-923 will be used for connecting to a manhole as shown in detail WW-10 (see accompanying construction plans). The bedding method will be compacted granular fill or densely compacted backfill and therefore will be Class C as shown in NAVFAC Design Manual DM-7.1, May 1982, Figure 18, Pg. 7.1-186. Bedding is required to establish line and grade and to provide firm pipe support. The Bedding materials will be Class IA (open-graded, clean manufactured aggregates, ASTM D 2321) with 6 in. minimum between the excavation line ("foundation") to equalize load distributions along the invert of the pipe.

Live Load Calculation

The live loads that can be included in buried pipe are truck load, car load, train load and any other type of non-concentrated, surcharge, load (ex. equipment, piles of stored materials, debris). Vehicular loads are typically based on The American Association of State Highway and Transportation Officials (AASHTO) standard truck loadings. For calculating the soil pressure on flexible pipe, the loading is normally assumed to be an H20 (HS20) truck. A standard H20 truck has a total weight of 40,000 lbs (20 tons). The weight is distributed with 8,000 lbs on the front axle and 32,000 lbs on the rear axle. The HS20 truck is a tractor and trailer unit having the same axle loadings as the H20 truck but with two rear axles. For these trucks, the maximum wheel load is found at the rear axle(s) and equals 40 percent of the total weight of the truck. The maximum wheel load may be used to represent the static load applied by either a single axle or tandem axles. The heaviest tandem axle loads normally encountered on highways are around 40,000 lbs (20,000 lbs per wheel).



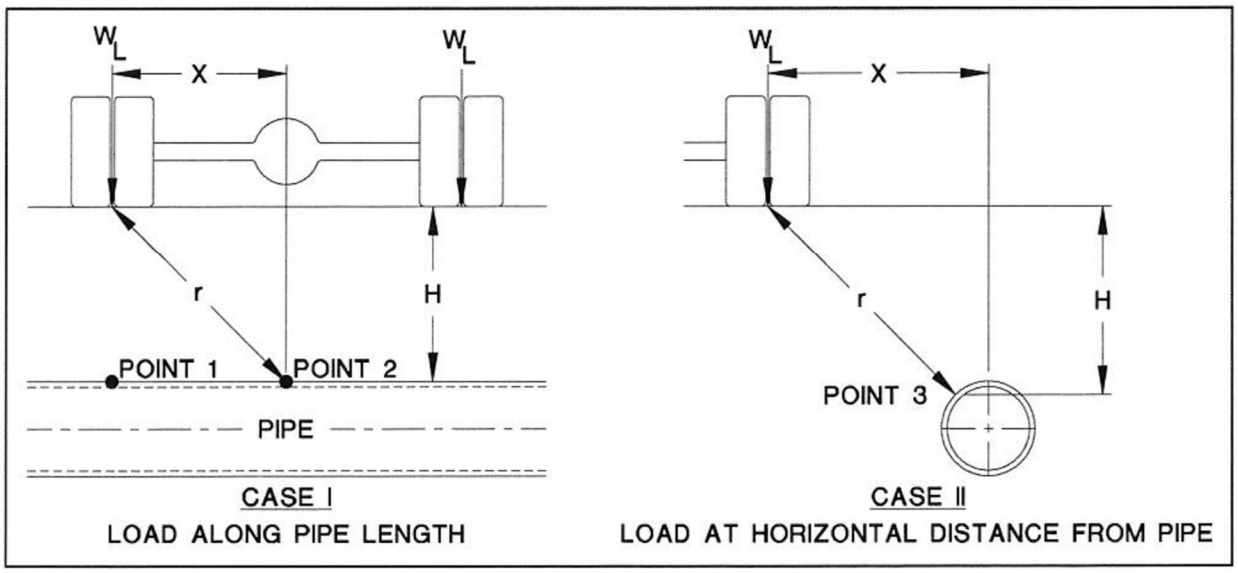
STANDARD HS TRUCKS

The Boussinesq Equation gives the pressure at any point in a soil mass under a concentrated surface load. The Boussinesq Equation may be used to find the pressure transmitted from a wheel load to a point that is not along the line of action of the load. Pavement effects are neglected.

$$P'_L = \frac{3 I_f W_w H^3}{2\pi r^5}$$

P_L = vertical soil pressure due to live load (psf)
W_w = wheel load, (20,000 lb)
H = vertical depth to pipe crown, (min. 2 ft)
If = impact factor (1.0)
r = distance from the point of load application to pipe crown, ft

$$r = \sqrt{X^2 + H^2}$$



For the proposed project, $r=(o^2+2^2)^{0.5}=2$ ft
$P_L=(3*1.0*20{,}000*2^3)/(2*\pi*2^5)=2{,}388$ psf = 16.5 psi

Buckling Analysis

Predicted and allowable buckling pressures must be calculated for each size of pipe and type of flexible pipe material.

$$q_a=0.4*\sqrt[2]{32*R_w*B¢*E_b*(E*I/D^3)} = 9{,}030 \text{ psi for an 8" diameter pipe}$$

$$B' = \frac{1}{1+4*e^{-0.065H}}$$

q_a =allowable buckling pressure, pounds per square inch (psi)

R_w =1; Water buoyancy factor. If (height of water surface above the top of the pipe) h_w = 0.

H =Depth of burial in feet (ft) from ground surface to crown of pipe. (2 feet min for the proposed project)

B' =Empirical coefficient of elastic support

E_b =Modulus of soil reaction for the bedding material (1,000 psi)

E =Modulus of elasticity of the pipe material (400,000 psi min for PVC)

I =moment of inertia of the pipe wall cross section per linear inch of pipe, $inch^4$/lineal inch

D =mean pipe diameter (8 in)

Hollow Cylindrical Cross Section: $I = \pi (d_o^4 - d_i^4) / 64 = 78.41$ in^4 for an 8" diameter pipe

Where d_o = cylinder outside diameter (8.625 in.); d_i = cylinder inside diameter (7.921 in.)

AVERAGE VALUES OF MODULUS OF SOIL REACTION, E'
(For Initial Flexible Pipe Deflection)

Soil type-pipe bedding material (Unified Classification System[a]) (1)	E' for Degree of Compaction of Pipe Zone Backfill, psi: Loose (2)	Slight <85% Proctor, <40% relative density (3)	Moderate 85%-95% Proctor, 40%-70% relative density (4)	High >95% Proctor, >70% relative density (5)
Fine-grained Soils (LL > 50)[b] Soils with medium to high plasticity CH, MH, CH-MH	No data available; consult a competent soils engineer; Otherwise use E' = 0			
Fine-grained Soils (LL < 50) Soils with medium to no plasticity CL, ML ML-CL, with less than 25% coarse-grained particles	50	200	400	1,000
Fine-grained Soils (LL < 50) Soils with medium to no plasticity CL, ML, ML-CL, with more than 25% coarse-grained particles	100	400	1,000	2,000
Coarse-grained Soils with Fines GM, GC, SM, SC[c] contains more than 12% fines				
Coarse-grained Soils with Little or No Fines GW, GP, SW, SP[c] contains less than 12% fines	200	1,000	2,000	3,000
Crushed Rock	1,000	3,000	3,000	3,000
Accuracy in Terms of Percentage Deflection[d]	±2	±2	±1	±0.5

[a]ASTM Designation D 2487, USBR Designation E-3.
[b]LL = Liquid limit.
[c]Or any borderline soil beginning with one of these symbols (i.e., GM-GC, GC-SC).
[d]For ±1% accuracy and predicted deflection of 3%, actual deflection would be between 2% and 4%.
Note: Values applicable only for fills less than 50 ft (15 m). Table does not include any safety factor. For use in predicting initial deflections only, appropriate Deflection Lag Factor must be applied for long-term deflections. If bedding falls on the borderline between two compaction categories, select lower E' value or average the two values. Percentage Proctor based on laboratory maximum dry density from test standards using about 12,500 ft-lb/cu ft (598,000 J/m^3) (ASTM D 698, AASHTO T-99, USBR Designation E-11). 1 psi = 6.9 kN/m^2.

SOURCE: "Soil Reaction for Buried Flexible Pipe," by Amster K. Howard, U.S. Bureau of Reclamation, Denver, Colorado. Reprinted with Permission from American Society of Civil Engineers Journal of Geotechnical Engineering Division, January 1977, pp. 33-43.

Prism Load Calculations

The prism load calculations are equal to the assumed weight of soil over the pipe. The backfill of the soil over the pipe is detailed in drawing WW-17 in the accompanying plan sheet set. The approximate dry density of the soil in the backfill as shown is 120 pcf. The total prism load is calculated by:

P=density x height of the soil = 120 pcf * 2 ft=240 psf=1.67 psi

The Modified Iowa Equation is used for predicting deflection in buried flexible pipe:

$$\%\text{Deflection} = \frac{\%\Delta Y}{D} = \frac{(D_L KP + KW')(100)}{[2E/(3(DR-1)^3)] + 0.061E'}$$

Where:
DL = Deflection Lag Factor=1.0 (Typical)
K = Bedding Constant=0.1 (Typical)
P = Prism Load=Weight of soil over pipe (1.67 psi, above)
W' = Live Load (16.5 psi, calculated above)
E = Modulus of Elasticity=400,000 psi minimum for PVC
DR = Dimension Ratio (OD/t) (8.625/0.332=25.98)
E' = Modulus of Soil Reaction (1,000 psi)

Δ=((1*0.1*1.67+0.1*16.5)*(100))/((2*400000/(3*(25.98-1)^3))+0.061*1000)=2.54%

The maximum deflection allowed is 5%. This pipe meets this specification.

Q_p=pressure applied to the pipe under installed conditions (psi) = Live load + Prism load = q_p= 16.5 psi+1.67 psi=18.17 psi

$q_a \geq q_p$ for the specified pipe and is acceptable for the proposed installation.

Wall Crushing

The project does not propose any trenchless installation and no vertical curvature between manholes is anticipated. Additionally, the project does not include any horizontally curved gravity sanitary sewer piping. Should any horizontal curves be required as an immediate field change, it shall be a minimum of 300*D_O=300*8.625 in=2587.5 inches=215.6 feet. The curves will be provided by pipe flexure and in no case will any joint flexure be allowed. All joints will be installed fully seated per the manufacturer's recommendation.

There will be no concrete encased flexible pipe with the proposed project. If flexible pipe is needed in the future, it shall be installed in a rigid encasement (concrete) and installed at a maximum depth of:

H=(24*P_C*A)/(£*D_O)

Where

P_C=compressive stress (4,000 psi for PVC pipe)

A=surface area of the pipe wall (in^2/ft)

£=specific weight of the soil (pcf)

D_O=outside pipe diameter (in)

The flexible pipe will be installed under favorable ambient temperature conditions and no provisions will be needed to ensure adequate installation.

The conditions of this installation are such that strain related failure is not anticipated within the 50-year life.

Pressure loss in fittings

Calculations:

$$zeta = \frac{1.44}{f + (1.44 - f) * (E_b / E_{n'})} \quad f = \frac{\frac{b}{d_a - 1}}{1.154 + 0.444 * (\frac{b}{d_a - 1})}$$

f =pipe/trench width coefficient

b =trench width (OD+12”=8.625”+12”=20.625”)

d_a =pipe diameter (8.625 in)

E_b =modulus of soil reaction for the bedding material (1,000 psi)

E_n =modulus of soil reaction for the in-situ soil (1.67 psi)

Pressure loss factor=Zeta = 3.24

Pipe Stiffness

Pipe stiffness (P_s) in psi can be determined either by parallel plate test at 5% deflection, based on manufacturer's data or national reference standards; or, calculated using the following equation. The minimum pipe stiffness for PVC pipe less than 15 inches in diameter meeting ASTM D 3034 is 115 psi for SDR 26.

$$P_s = \frac{EI}{0.149 * r^3}$$

E = modulus of elasticity of the pipe material (400 ksi)

I =moment of inertia of the pipe wall cross section per linear inch of pipe, $inch^4$/lineal inch = $inch^3$. ($78.41\ in^4/12\ in=6.53$)

D =mean pipe diameter (8 in)

r =mean radius (4 in)

$P_S=(400*6.53)/(0.149*4^3)=273$ psi

In order to ensure that the stiffness being provided to the installation has a reasonable contribution from

pipe stiffness, and does not rely solely on the stiffness provided by the soil stiffness factor (SSF), the ratio of P_s/SSF must be calculated. This process must be repeated until P_s/SSF 〈 0.15 exists for all proposed pipe sizes and for all types of flexible pipe materials.

$$\frac{P_s}{SSF} = \frac{P_s}{0.061 * zeta * E_b} \geq 0.15$$

P_s =Pipe stiffness (273 psi)

E_b =modulus of soil reaction for the bedding material (1,000 psi)

zeta =1.0, or a value calculated above (3.24)

SSF =soil stiffness factor ($0.061*zeta*E_b$) = 0.061(3.24)(1000) = 197.64

Ps/SSF=273/197.64=1.38

Based upon the above calculations, the 8" SDR-26 Pipe is adequate for the proposed installation as noted on the accompanying plan sheets.

AGENT AUTHORIZATION FORM

TCEQ-0599

.

Agent Authorization Form
For Required Signature
Edwards Aquifer Protection Program
Relating to 30 TAC Chapter 213
Effective June 1, 1999

I Brian Burke,
Print Name

President,
Title - Owner/President/Other

of Burke Eagles Nest II,
Corporation/Partnership/Entity Name

have authorized Terry Hagood
Print Name of Agent/Engineer

of Hagood Engineering Associates, Inc.
Print Name of Firm

to represent and act on the behalf of the above named Corporation, Partnership, or Entity for the purpose of preparing and submitting this plan application to the Texas Commission on Environmental Quality (TCEQ) for the review and approval consideration of regulated activities.

I also understand that:

1. The applicant is responsible for compliance with 30 Texas Administrative Code Chapter 213 and any condition of the TCEQ's approval letter. The TCEQ is authorized to assess administrative penalties of up to $10,000 per day per violation.

2. For those submitting an application who are not the property owner, but who have the right to control and possess the property, additional authorization is required from the owner.

3. Application fees are due and payable at the time the application is submitted. The application fee must be sent to the TCEQ cashier or to the appropriate regional office. The application will not be considered until the correct fee is received by the commission.

4. A notarized copy of the Agent Authorization Form must be provided for the person preparing the application, and this form must accompany the completed application.

5. No person shall commence any regulated activity on the Edwards Aquifer Recharge Zone, Contributing Zone or Transition Zone until the appropriate application for the activity has been filed with and approved by the Executive Director.

SIGNATURE PAGE:

Applicant's Signature

Jan 4, 2023
Date

THE STATE OF UTAH §

County of SUMMIT §

BEFORE ME, the undersigned authority, on this day personally appeared Brian Burke known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that (s)he executed same for the purpose and consideration therein expressed.

GIVEN under my hand and seal of office on this 4 day of January, 2023.

NOTARY PUBLIC

Droc Ewing
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 03-16-2025

DROC EWING
NOTARY PUBLIC-STATE OF UTAH
COMMISSION EXP. 03/16/2025
COMMISSION NO. 717351

CORE DATA FORM

TCEQ-10400

TCEQ Use Only

TCEQ Core Data Form

For detailed instructions regarding completion of this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission *(If other is checked please describe in space provided)*

☒ New Permit, Registration or Authorization *(Core Data Form should be submitted with the program application)*

☐ Renewal *(Core Data Form should be submitted with the renewal form)* ☐ Other

2. Attachments **Describe Any Attachments:** *(ex. Title V Application, Waste Transporter Application, etc.)*

☒ Yes ☐ No WPAP MODIFICATION

3. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	4. Regulated Entity Reference Number *(if issued)*
CN 604552380		RN 107206674

SECTION II: Customer Information

5. Effective Date for Customer Information Updates (mm/dd/yyyy) 12/2/2022

6. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check only one of the following:*

☐ Owner ☐ Operator ☒ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ Voluntary Cleanup Applicant ☐ Other: _____

7. General Customer Information

☐ New Customer ☐ Update to Customer Information ☒ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State) ☐ No Change**

If "No Change" and Section I is complete, skip to Section III – Regulated Entity Information.

8. Type of Customer:	☐ Corporation	☐ Individual	☐ Sole Proprietorship- D.B.A
☐ City Government	☐ County Government	☐ Federal Government	☐ State Government
☐ Other	☐ General Partnership	☐ Limited Partnership	☐ Other:

9. Customer Legal Name *(If an individual, print last name first: ex: Doe, John)* *If new Customer, enter previous Customer below* *End Date:*

10. Mailing Address:

City	State	ZIP	ZIP + 4

11. Country Mailing Information *(if outside USA)* **12. E-Mail Address** *(if applicable)*

13. Telephone Number ( ) - **14. Extension or Code** **15. Fax Number** *(if applicable)* ( ) -

16. Federal Tax ID *(9 digits)*	17. TX State Franchise Tax ID *(11 digits)*	18. DUNS Number *(if applicable)*	19. TX SOS Filing Number *(if applicable)*

20. Number of Employees

☐ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher

21. Independently Owned and Operated?

☐ Yes ☐ No

SECTION III: Regulated Entity Information

22. General Regulated Entity Information *(If 'New Regulated Entity" is selected below this form should be accompanied by a permit application)*

☒ New Regulated Entity ☐ Update to Regulated Entity Name ☐ Update to Regulated Entity Information ☐ No Change** *(See below)*

If "NO CHANGE" is checked and Section I is complete, skip to Section IV, Preparer Information.

23. Regulated Entity Name *(name of the site where the regulated action is taking place)*

EAGLES NEST 3

24. Street Address of the Regulated Entity: *(No P.O. Boxes)*	3600 EAGLES NEST STREET							
	City	ROUND ROCK	**State**	TX	**ZIP**	78665	**ZIP + 4**	
25. Mailing Address:	260 E. BAKER STREET, STE. 100							
	City	COSTA MESA	**State**	CA	**ZIP**	92626	**ZIP + 4**	

26. E-Mail Address:	KEN@BURKEGROUP.NET

27. Telephone Number	**28. Extension or Code**	**29. Fax Number** *(if applicable)*
(714) 824-6011		(714) 824-6001

30. Primary SIC Code (4 digits)	**31. Secondary SIC Code** (4 digits)	**32. Primary NAICS Code** (5 or 6 digits)	**33. Secondary NAICS Code** (5 or 6 digits)
6512		531120	

34. What is the Primary Business of this entity? *(Please do not repeat the SIC or NAICS description.)*

COMMERCIAL

Questions 34 – 37 address geographic location. Please refer to the instructions for applicability.

35. Description to Physical Location:	Generally east of the intersection of Eagles Nest St. and Sunrise, approximately 470 ft.

36. Nearest City	**County**	**State**	**Nearest ZIP Code**
ROUND ROCK	WILLIAMSON	TX	78665

37. Latitude (N) In Decimal:	30.558		**38. Longitude (W) In Decimal:**	-97.667	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form or the updates may not be made. If your Program is not listed, check other and write it in. See the Core Data Form instructions for additional guidance.

☐ Dam Safety	☐ Districts	☒ Edwards Aquifer	☐ Industrial Hazardous Waste	☐ Municipal Solid Waste
		11-15041602, 11-1504901		
☐ New Source Review – Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS	☐ Sludge
☐ Stormwater	☐ Title V – Air	☐ Tires	☐ Used Oil	☐ Utilities
☐ Voluntary Cleanup	☐ Waste Water	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	RAQUEL SAENZ	**41. Title:**	PROJECT ASSISTANT

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(512) 244-1546		(512) 244-1010	RAQUELR@HEAENG.COM

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 9 and/or as required for the updates to the ID numbers identified in field 39.

(See the Core Data Form instructions for more information on who should sign this form.)

Company:	HAGOOD ENGINEERING ASSOC.	**Job Title:**	ENGINEER
Name *(In Print)* :	TERRY HAGOOD, P.E.	**Phone:**	(512) 244-1546
Signature:		**Date:**	04/30/2023

Application Fee Form

Texas Commission on Environmental Quality
Name of Proposed Regulated Entity: EAGLES NEST 3
Regulated Entity Location: 3600 EAGLES NEST STREET, ROUND ROCK, TX 78665
Name of Customer: CHANDLER CREEK PARCEL J&K, LP
Contact Person: TERRY HAGOOD Phone: 512.244.1546
Customer Reference Number (if issued):CN 604552380
Regulated Entity Reference Number (if issued):RN _____

Austin Regional Office (3373)

☐ Hays ☐ Travis ☒ Williamson

San Antonio Regional Office (3362)

☐ Bexar ☐ Medina ☐ Uvalde
☐ Comal ☐ Kinney

Application fees must be paid by check, certified check, or money order, payable to the **Texas Commission on Environmental Quality**. Your canceled check will serve as your receipt. **This form must be submitted with your fee payment**. This payment is being submitted to:

☒ Austin Regional Office
☐ Mailed to: TCEQ - Cashier
Revenues Section
Mail Code 214
P.O. Box 13088
Austin, TX 78711-3088

☐ San Antonio Regional Office
☐ Overnight Delivery to: TCEQ - Cashier
12100 Park 35 Circle
Building A, 3rd Floor
Austin, TX 78753
(512)239-0357

Site Location (Check All That Apply):

☒ Recharge Zone ☐ Contributing Zone ☐ Transition Zone

Type of Plan	***Size***	***Fee Due***
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	45.26 Acres	$ 8,000.00
Sewage Collection System	1244 L.F.	$ 650.00
Lift Stations without sewer lines	Acres	$
Underground or Aboveground Storage Tank Facility	Tanks	$
Piping System(s)(only)	Each	$
Exception	Each	$
Extension of Time	Each	$

Signature: _____

Date: ____

Application Fee Schedule

Texas Commission on Environmental Quality
Edwards Aquifer Protection Program 30 TAC Chapter 213 (effective 05/01/2008)

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

Project	*Project Area in Acres*	*Fee*
One Single Family Residential Dwelling	< 5	$650
Multiple Single Family Residential and Parks	< 5 5 < 10 10 < 40 40 < 100 100 < 500 ≥ 500	$1,500 $3,000 $4,000 $6,500 $8,000 $10,000
Non-residential (Commercial, industrial, institutional, multi-family residential, schools, and other sites where regulated activities will occur)	< 1 1 < 5 5 < 10 10 < 40 40 < 100 ≥ 100	$3,000 $4,000 $5,000 $6,500 $8,000 $10,000

Organized Sewage Collection Systems and Modifications

Project	*Cost per Linear Foot*	*Minimum Fee-Maximum Fee*
Sewage Collection Systems	$0.50	$650 - $6,500

Underground and Aboveground Storage Tank System Facility Plans and Modifications

Project	*Cost per Tank or Piping System*	*Minimum Fee-Maximum Fee*
Underground and Aboveground Storage Tank Facility	$650	$650 - $6,500

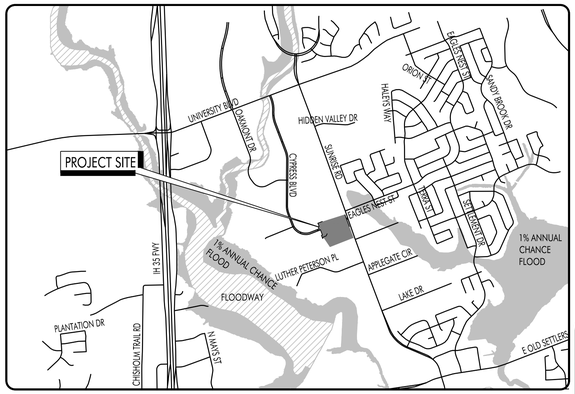
Exception Requests

Project	*Fee*
Exception Request	$500

Extension of Time Requests

Project	***Fee***
Extension of Time Request	$150

SITE LOCATION MAP



0 2000 4000
SCALE: 1" = 2000'

SITE DEVELOPMENT IMPROVEMENTS
SUBMITTED FOR
EAGLE'S NEST 3
3259 EAGLES NEST STREET
ROUND ROCK, TEXAS 78665
SDP 2208-0002

BENCHMARKS

TBM #1 - DESCRIPTION (SEE SP1) IS A MAG NAIL WITH METAL WASHER STAMPED "JPH BENCHMARK" SET IN CONCRETE CURB INLET IN THE WEST MARGIN OF SUNRISE ROAD, LOCATED APPROX 400 FEET SOUTHEASTERLY FROM THE INTERSECTION OF SUNRISE ROAD AND EAGLES NEST STREET, AND APPROX 1,100 FEET FROM THE INTERSECTION OF SUNRISE ROAD AND LUTHER PETERSON PLACE.
ELEV = 755.76' (NAVD'88) GEOID 18

TBM #2 - DESCRIPTION (SEE SP1) IS A MAG NAIL WITH METAL WASHER STAMPED "JPH BENCHMARK" SET IN CONCRETE CURB INLET IN THE SOUTHEAST CORNER OF LOT4A SHOWN HEREON, LOCATED APPROX 805 FEET SOUTHWESTERLY FROM THE WEST RIGHT-OF-WAY LINE OF EAGLES NEST STREET.
ELEV = 766.49' (NAVD'88) GEOID 18

LEGAL DESCRIPTION

AMENDING PLAT OF
REPLAT OF CHANDLER OAKS LOT B, AND A
REPLAT OF CYPRESS COVE SUBDIVISION LOT 2
AND FINAL PLAT OF 2.905 ACRES OF
RELEASED RIGHT OF WAY (CYPRESS Blvd)
DOC. No. 2015058599

PLAN SUBMITTALS

NO.	DATE	COMMENTS
1	12/5/2022	SUBMITTAL TO TCEQ
2	12/7/2022	SUBMITTAL TO CITY OF ROUND ROCK DSO
3	4/30/2023	UPDATE 1 TO TCEQ
4		
5		
6		
7		
8		
9		
10		

Sheet List Table

SHEET NUMBER	SHEET TITLE	SHEET DESCRIPTION
01	CVR	COVER
02	PLAT	PLAT
03	PLAT2	PLAT
04	SRV	SURVEY
05	SP	SITE PLAN
06	FIRE	FIRE SAFETY PLAN
07	EDA	EXISTING DRAINAGE AREA MAP
08	PDA OVERALL	OVERALL DRAINAGE AREA MAP
09	PDA	PROPOSED DRAINAGE AREA MAP
10	PDA CALCULATIONS	DRAINAGE AREA CALCULATIONS
11	PDA CALCULATIONS	DRAINAGE AREA CALCULATIONS
12	EDA-TCEQ	EXISTING TCEQ DRAINAGE AREA MAP
13	PDA-TCEQ	PROPOSED TCEQ DRAINAGE AREA MAP
14	TCEQ CALCULATIONS	DRAINAGE CALCULATIONS
15	C00	GENERAL NOTES
16	C01	TCEQ NOTES
17	C10	EROSION AND SEDIMENTATION CONTROL PLAN
18	C11	EROSION AND SEDIMENTATION CONTROL PLAN
19	C12	DEMOLITION PLAN
20	C20	OVERALL UTILITY PLAN
21	C21	UTILITY PLAN
22	C22	UTILITY PLAN
23	C23	UTILITY PLAN
24	C24	UTILITY PLAN
25	C25	WATER PROFILES
26	C26	WATER PROFILES
27	C27	WATER PROFILES
28	C28	WASTEWATER PROFILES
29	C30	OVERALL DRAINAGE PLAN
30	C31	DRAINAGE PLAN
31	C32	DRAINAGE PLAN
32	C33	DRAINAGE PLAN
33	C34	DRAINAGE PLAN
34	C35	STORM PROFILES
35	C36	STORM PROFILES
36	C37	DRAINAGE FEATURES
38	C400	OVERALL GRADING PLAN
39	C401	GRADING PLAN
40	C402	GRADING PLAN
41	C403	GRADING PLAN
42	C404	GRADING PLAN
43	C405	STAIRWAY BLOWUP
44	C406	STAIRWAY BLOWUP
45	C407	RAMP BLOWUP
46	C408	WALL PROFILE
47	C409	WALL PROFILE
48	C410	POND GRADING
49	C50	OVERALL DIMENSION CONTROL PLAN
50	C51	DIMENSION CONTROL PLAN
51	C52	DIMENSION CONTROL PLAN
52	C53	DIMENSION CONTROL PLAN
53	C54	DIMENSION CONTROL PLAN
54	C60	OVERALL PAVING AND STRIPING PLAN
55	C61	PAVING AND STRIPING PLAN
56	C62	PAVING AND STRIPING PLAN
57	C63	PAVING AND STRIPING PLAN
58	C64	PAVING AND STRIPING PLAN
59	C70	CONSTRUCTION DETAILS
60	C71	ESC & UTILITY DETAILS
61	C72	UTILITY DETAILS
62	C73	DETENTION DETAILS
63	C74	UTILITY DETAILS
64	LA0.00	LANDSCAPE NOTES AND SCHEDULE
65	LA0.01	LANDSCAPE CALCS
66	LA1.00	OVERALL LANDSCAPE PLAN
67	LA1.01	LANDSCAPE PLAN
68	LA1.02	LANDSCAPE PLAN
69	LA1.03	LANDSCAPE PLAN
70	LA1.04	LANDSCAPE PLAN
71	LA5.01	LANDSCAPE DETAILS
72	E1.0	SITE PHOTOMETRIC

NOT INCLUDED

ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER WHO PREPARED THEM. IN ACCEPTING THESE PLANS, THE CITY OF ROUND ROCK MUST RELY UPON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER.

STATE OF TEXAS ★
COUNTY OF WILLIAMSON ★★

I, TERRY R. HAGOOD, DO HEREBY CERTIFY THAT THE PUBLIC WORKS AND DRAINAGE IMPROVEMENTS DESCRIBED HEREIN HAVE BEEN DESIGNED IN COMPLIANCE WITH THE SUBDIVISION AND BUILDING REGULATION ORDINANCES AND STORM WATER DRAINAGE POLICY ADOPTED BY THE CITY OF ROUND ROCK, TEXAS.

STATE OF TEXAS
TERRY R. HAGOOD
92960
REGISTERED
PROFESSIONAL ENGINEER

4/30/2023

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY TERRY R. HAGOOD, P.E. 92960
THIS DRAWING MAY NOT BE MODIFIED WITHOUT THE EXPRESS WRITTEN CONSENT OF THE ENGINEER, AND THEN ONLY IN ACCORDANCE WITH THE RULES OF THE TEXAS ENGINEERING PRACTICE ACT.

ACCEPTED FOR CONSTRUCTION BY:

Planning and Development Services — Date
City of Round Rock, Texas

SITE PLAN PERMIT NO.	SDP2208-0002
RECORDED FINAL PLAT DOC. NO.	
WPAP APPROVAL CASE #	APPROVAL DATE

IMPERVIOUS COVER	
PUBLIC SIDEWALK, STREET, CURB AND GUTTER	0 SF
BUILDING FOOTPRINT	0 SF
PARKING, PRIVATE SIDEWALK	0 SF
TOTAL	0 SF
TOTAL AREA OF DISTURBANCE (LOC)	611,943.99 SF

NOTES:

1. NO PORTION OF THE ABOVE LEGALLY DESCRIBED PROPERTY IS WITHIN THE DESIGNATED 1% ANNUAL CHANCE FLOODPLAIN AREA AS DESIGNATED BY F.E.M.A. FLOOD INSURANCE RATE MAP (FIRM) ON COMMUNITY PANEL NO. 48491C0515E, DATED SEPTEMBER 26, 2008 FOR THE CITY OF ROUND ROCK, WILLIAMSON COUNTY, TEXAS.
2. THIS PROPERTY IS WITHIN THE EDWARDS AQUIFER RECHARGE ZONE.
3. SEE SHEET SHEETNUMBER FOR SHEETDESCRIPTION.

Texas 811 — Know what's below. Call before you dig.

OWNER
BURKE REAL ESTATE GROUP
2590 OAKMONT DRIVE, SUITE 210
ROUND ROCK, TEXAS 78665
KEN WHEELER
(714) 824-6011

ARCHITECT
STUDIO 8 ARCHITECTS
611 WEST FIFTEENTH STREET
AUSTIN, TEXAS 78701
JUSTIN RUIZ
(512) 473-8989

SURVEYOR
JPH LAND SURVEYING
1516 PALM VALLEY BLVD
ROUND ROCK, TEXAS 78664
COLE STREVEY
(512)686-1474

ENGINEER
HAGOOD ENGINEERING ASSOCIATES, INC.
900 E. MAIN STREET
ROUND ROCK, TEXAS 78664
TERRY R. HAGOOD, P.E.
(512) 244-1546

LANDSCAPE ARCHITECT
STUDIO 16:19
305 WEST LIBERTY AVE
ROUND ROCK TEXAS 78664
JONATHAN WAGNER
(512)534-8680

REVISIONS

NO.	DATE	DESCRIPTION	APPROVED BY
1			
2			
3			
4			
5			

HAGOOD ENGINEERING ASSOCIATES
900 E. Main Street
Round Rock, TX 78664
Phone (512) 244-1546
Fax (512) 244-1010
www.hea.eng.pro
TBPE Registration No. F-12709

JOB NO:	13-018.2
DRAWN BY:	RAB
CHECKED BY:	TRH
P.I.C.:	TRH
FILE NO:	13-018.2CVR
DATE:	4/30/2023
SHEET:	01 OF 72

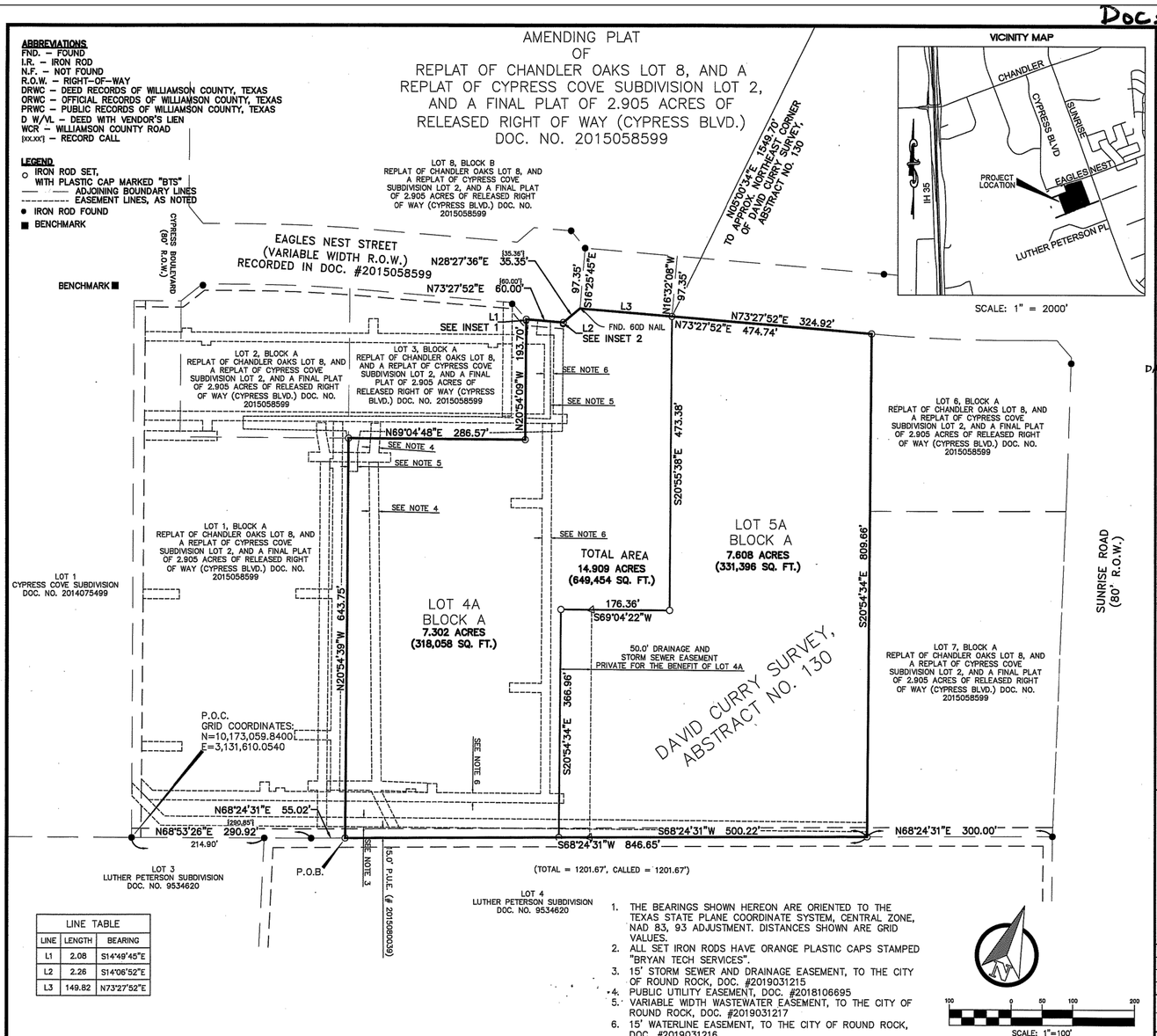
13-018.2CVR, 4/30/2023 1:19:51 PM, TerryH

Doc# 20191269871

AMENDING PLAT
OF
REPLAT OF CHANDLER OAKS LOT 8, AND A REPLAT OF CYPRESS COVE SUBDIVISION LOT 2, AND A FINAL PLAT OF 2.905 ACRES OF RELEASED RIGHT OF WAY (CYPRESS BLVD.) DOC. NO. 2015058599

ABBREVIATIONS
FND. – FOUND
I.R. – IRON ROD
N.F. – NOT FOUND
R.O.W. – RIGHT-OF-WAY
DRWC – DEED RECORDS OF WILLIAMSON COUNTY, TEXAS
ORWC – OFFICIAL RECORDS OF WILLIAMSON COUNTY, TEXAS
PRWC – PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS
D W/VL – DEED WITH VENDOR'S LIEN
WCR – WILLIAMSON COUNTY ROAD
[xx.xx'] – RECORD CALL

LEGEND
○ IRON ROD SET, WITH PLASTIC CAP MARKED "BTS"
——— ADJOINING BOUNDARY LINES
- - - - - - EASEMENT LINES, AS NOTED
● IRON ROD FOUND
■ BENCHMARK



VICINITY MAP

SCALE: 1" = 2000'

LINE TABLE		
LINE	LENGTH	BEARING
L1	2.08	S14°49'45"E
L2	2.26	S14°06'52"E
L3	149.82	N73°27'52"E

1. THE BEARINGS SHOWN HEREON ARE ORIENTED TO THE TEXAS STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, NAD 83, 93 ADJUSTMENT. DISTANCES SHOWN ARE GRID VALUES.
2. ALL SET IRON RODS HAVE ORANGE PLASTIC CAPS STAMPED "BRYAN TECH SERVICES".
3. 15' STORM SEWER AND DRAINAGE EASEMENT, TO THE CITY OF ROUND ROCK, DOC. #2019031215
4. PUBLIC UTILITY EASEMENT, DOC. #2018106695
5. VARIABLE WIDTH WASTEWATER EASEMENT, TO THE CITY OF ROUND ROCK, DOC. #2019031217
6. 15' WATERLINE EASEMENT, TO THE CITY OF ROUND ROCK, DOC. #2019031216

OWNER:
BURKE EAGLE NEST II, LLC
260 E. BAKER STREET, SUITE 100
COSTA MESA, CALIFORNIA, 92626
CHANDLER CREEK PARCEL G&I, LP
260 E. BAKER STREET, SUITE 100
COSTA MESA, CALIFORNIA 92626

SURVEYOR:
BRUCE BRYAN, RPLS
BRYAN TECHNICAL SERVICES, INC.
911 NORTH MAIN
TAYLOR, TEXAS 76574
BRUCE@BRYANTECHNICALSERVICES.COM

ENGINEER:
TERRY HAGOOD, PE
HAGOOD ENGINEERING ASSOCIATES, INC.
900 EAST MAIN STREET
ROUND ROCK, TEXAS 78664
TBPE FIRM NO. F-12709
TERRYH@HEAENG.COM

ACREAGE:
14.91 ACRES

NUMBER OF LOTS BY TYPE:
DEVELOPMENT – 2

ACREAGE BY LOT TYPE:
DEVELOPMENT – 14.91 ACRES

PATENT SURVEY:
DAVID CURRY SURVEY, ABSTRACT NO. 130

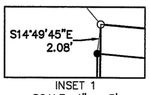
NUMBER OF BLOCKS: 1

LINEAR FEET OF NEW STREETS: 0

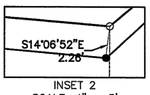
CONNECTIVITY INDEX: NOT APPLICABLE

SUBMITTAL DATE:
JULY 23, 2019

BENCHMARK DESCRIPTION:
TOP OF FIRE HYDRANT BOLT
N=10173877.2040'
E=3131261.1320'
ELEVATION = 781.81 (NAVD 88, GEOID MODEL 2012)



INSET 1
SCALE: 1" = 5'



INSET 2
SCALE: 1" = 5'

BRYAN TECHNICAL SERVICES, INC.
911 NORTH MAIN
TAYLOR, TX 76574
PHONE: (512) 352-9090
FAX: (512) 352-9091
FIRM No. 10128500
www.bryantechnicalservices.com

NO.	DATE	REVISIONS	BY

DRAWN BY: CONTRACT	CHECKED BY: BB
SCALE: 1" = 100'	APPROVED BY: BB
PROJECT NO. 19-652	DATE: September 20, 2019

Doc# 20191269871

AMENDING PLAT
OF
REPLAT OF CHANDLER OAKS LOT 8, AND A REPLAT OF CYPRESS COVE SUBDIVISION LOT 2, AND A FINAL PLAT OF 2.905 ACRES OF RELEASED RIGHT OF WAY (CYPRESS BLVD.) DOC. NO. 2015058599

14.909 ACRES

THESE NOTES DESCRIBE THAT CERTAIN TRACT OF LAND LOCATED IN THE DAVID CURRY SURVEY, ABSTRACT NO. 130 SITUATED IN WILLIAMSON COUNTY, TEXAS; SAID TRACT BEING ALL OF LOT 4, BLOCK A, CHANDLER OAKS LOT 8, A REPLAT OF CYPRESS COVE SUBDIVISION LOT 2, AND A FINAL PLAT OF 2.905 ACRES OF RELEASED RIGHT OF WAY (CYPRESS BOULEVARD) DOCUMENT NO. 2015058599, OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY (OPRWC) ACCORDING TO THE MAP OR PLAT RECORDED IN DOCUMENT NO. 2015080039, OPRWC AS CONVEYED IN A SPECIAL WARRANTY DEED FROM CHANDLER CREEK PARCEL J&K, LP, A TEXAS LIMITED PARTNERSHIP TO BURKE EAGLES NEST II, LLC, A TEXAS LIMITED LIABILITY COMPANY AS RECORDED IN DOCUMENT NO. 2017119296, OPRWC AND ALL OF LOT 5 OF SAID CHANDLER OAKS LOT 8, A REPLAT OF CYPRESS COVE SUBDIVISION LOT 2, AND A FINAL PLAT OF 2.905 ACRES OF RELEASED RIGHT OF WAY (CYPRESS BOULEVARD) DOCUMENT NO. 2015058599, OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY (OPRWC), PLAT BEING DEDICATED BY CHANDLER CREEK COMPANY J&K, LP, A TEXAS LIMITED PARTNERSHIP AND A PART OF AND OUT OF A CALLED "5.17 ACRES" CONVEYED IN A SPECIAL WARRANTY DEED FROM CHANDLER CREEK G&I, LP, A TEXAS LIMITED PARTNERSHIP TO CHANDLER CREEK PARCEL J&K, LP, A TEXAS LIMITED PARTNERSHIP DATED 12-28-2016 AND RECORDED IN DOCUMENT NO. 2016122843, OPRWC, SUBJECT TRACT BEING SURVEYED ON THE GROUND UNDER THE DIRECT SUPERVISION OF BRUCE LANE BRYAN, REGISTERED PROFESSIONAL LAND SURVEYOR NO. 4249, DURING THE MONTH OF JULY, 2019 AND BEING MORE FULLY DESCRIBED AS FOLLOWS:

COMMENCING AT A FOUND ½"IRON ROD (CAPPED "INLAND") (NORTH = 10173059.840 FEET, EAST = 10173059.840 FEET) AT THE SOUTHWEST CORNER OF AFOREMENTIONED LOT 1, BLOCK "A", SAME BEING THE SOUTHEAST CORNER OF LOT 1, CYPRESS COVE SUBDIVISION, A DEDICATED SUBDIVISION AS RECORDED IN DOCUMENT NO. 2014075499, PRWC IN THE NORTH LINE OF LOT 3 OF THE LUTHER PETERSON SUBDIVISION, A DEDICATED SUBDIVISION AS RECORDED IN DOCUMENT NO. 9534620 OF THE OFFICIAL RECORDS OF WILLIAMSON COUNTY (ORWC); THENCE NORTH 68° 53' 26"EAST WITH THE COMMON LINE OF SAID LOT 1, BLOCK "A" AND LOT 3 OF THE SAID LUTHER PETERSON SUBDIVISION, PASSING A FOUND ½"IRON ROD AT THE NORTHEAST CORNER OF SAID LOT 3, SAME BEING THE NORTHWEST CORNER OF LOT 4 OF THE SAID LUTHER PETERSON SUBDIVISION, AT 214.90 FEET, AND CONTINUING WITH THE COMMON LINE OF SAID LOT 1, BLOCK "A" AND LOT 4 OF THE SAID LUTHER PETERSON SUBDIVISION A TOTAL DISTANCE OF 290.92 FEET TO A FOUND ½"IRON ROD IN THE SOUTH LINE OF AFOREMENTIONED "LOT 1, BLOCK A"; THENCE NORTH 68° 24' 31"EAST WITH THE COMMON LINE OF SAID "LOT 1, BLOCK A" AND LOT 4 OF THE SAID LUTHER PETERSON SUBDIVISION A DISTANCE OF 55.02 FEET TO THE SOUTHEAST CORNER OF SAID "LOT 1, BLOCK A", SAME BEING THE SOUTHWEST CORNER OF AFOREMENTIONED "LOT 4, BLOCK A" AND THE PLACE OF BEGINNING OF THIS DESCRIPTION; SET A ½"IRON ROD (CAPPED "BRYAN TECHNICAL SERVICES") AT SAME CORNER;

THENCE NORTH 20° 54' 39"WEST WITH THE COMMON LINE OF SAID "LOT 1, BLOCK A" AND "LOT 4, BLOCK A", A DISTANCE OF 643.75 FEET TO THE COMMON CORNER OF "LOTS 1 THROUGH 4, BLOCK A" (DOCUMENT NO. 2015058599); SET A ½"IRON ROD (CAPPED "BRYAN TECHNICAL SERVICES") AT SAME CORNER;

THENCE NORTH 69° 04' 48"EAST WITH THE COMMON LINE OF SAID "LOT 3 AND 4, BLOCK A" A DISTANCE OF 286.57 FEET TO AN INTERIOR CORNER OF SAID "LOT 4", SAME BEING THE SOUTHEAST CORNER OF SAID "LOT 3";

THENCE NORTH 20° 54' 09"WEST WITH THE EAST LINE OF SAID "LOT 3" AND THE UPPER WEST LINE OF SAID "LOT 4", A DISTANCE OF 193.70 FEET TO A COMMON CORNER OF BOTH IN THE SOUTHERN RIGHT-OF-WAY OF EAGLES NEST STREET TO A SET ½"IRON ROD (CAPPED "BRYAN TECHNICAL SERVICES");

FOUND A ½"IRON ROD (CAPPED "INLAND", NOT HONORED) BEARING SOUTH 14° 49' 45"EAST A DISTANCE OF 2.08 FEET,

THENCE WITH THE SOUTH RIGHT-OF-WAY OF EAGLES NEST STREET (VARIABLE WIDTH) AND THE NORTH LINES OF "LOTS 4 AND 5, BLOCK A", AS FOLLOWS:

- NORTH 73° 27' 52"EAST 60.00 FEET TO A SET ½" IRON ROD (CAPPED "BRYAN TECHNICAL SERVICES") AT THE NORTHEAST CORNER OF SAID LOT 3, BLOCK "A", SAME BEING THE NORTHWEST CORNER OF AFOREMENTIONED LOT 5, BLOCK "A" (DOCUMENT NO. 2015080039); FOUND A ½"IRON ROD (NOT HONORED) BEARING SOUTH 14° 08' 52"EAST A DISTANCE OF 2.26 FEET,
- NORTH 28° 27' 36"EAST 35.35 FEET TO A FOUND 60D NAIL AND
- NORTH 73° 27' 52"EAST 474.74 FEET TO A SET ½" IRON ROD (CAPPED "BRYAN TECHNICAL SERVICES") AT THE NORTHEAST CORNER OF SUBJECT TRACT, SAME BEING THE NORTHEAST CORNER OF AFOREMENTIONED LOT 5 AND THE NORTHWEST CORNER OF LOT 6 OF AFOREMENTIONED CHANDLER OAKS LOT 8, A REPLAT OF CYPRESS COVE SUBDIVISION LOT 2, AND A FINAL PLAT OF 2.905 ACRES OF RELEASED RIGHT OF WAY (CYPRESS BOULEVARD);

THENCE SOUTH 20° 54' 34"EAST WITH THE COMMON LINES OF SAID LOT 5, LOT 6 AND LOT 7, BLOCK "A" OF AFOREMENTIONED CHANDLER OAKS LOT 8, A REPLAT OF CYPRESS COVE SUBDIVISION LOT 2, AND A FINAL PLAT OF 2.905 ACRES OF RELEASED RIGHT OF WAY (CYPRESS BOULEVARD) (DOCUMENT NO. 2015080039), A DISTANCE OF 809.66 FEET TO A SET ½" IRON ROD (CAPPED "BRYAN TECHNICAL SERVICES") AT THE SOUTHEAST CORNER OF SAID LOT 5 SAME BEING THE SOUTHWEST CORNER OF SAID LOT 7 IN THE NORTH LINE OF LOT 4 OF AFOREMENTIONED LUTHER PETERSON SUBDIVISION; A FOUND ½" IRON ROD AT THE SOUTHEAST CORNER OF LOT 7, BLOCK A IN THE WEST LINE OF SUNRISE ROAD BEARING NORTH 68° 24' 31" EAST A DISTANCE OF 300.22 FEET;

THENCE SOUTH 68° 24' 31"WEST WITH THE COMMON LINE OF SAID LOT 4 AND LOT 5, BLOCK "A", LOT 1, BLOCK "A", AND LOT 4 OF AFOREMENTIONED CHANDLER OAKS LOT 8, A REPLAT OF CYPRESS COVE SUBDIVISION LOT 2, AND A FINAL PLAT OF 2.905 ACRES OF RELEASED RIGHT OF WAY (CYPRESS BOULEVARD) (DOCUMENT NO. 2015080039) AND AFOREMENTIONED LOT 4 OF THE LUTHER PETERSON SUBDIVISION A DISTANCE OF 846.65 FEET TO THE PLACE OF BEGINNING, CONTAINING ACCORDING TO THE DIMENSIONS HEREIN STATED, AN AREA OF 14.909 ACRES.

BEARINGS RECITED HEREIN BASED ON THE TEXAS STATE PLANE COORDINATE SYSTEM (CENTRAL ZONE 4203, NAD 83/93 ADJUSTMENT. DISTANCES ARE EXPRESSED AS GRID VALUES.

PLAT NOTES:

1. NO PORTION OF THIS TRACT IS ENCROACHED BY THE ULTIMATE 1% ANNUAL CHANGE FLOODPLAIN.
2. NO PORTION OF THIS TRACT IS ENCROACHED BY ANY SPECIAL FLOOD HAZARD AREAS INUNDATED BY THE 1% ANNUAL CHANCE FLOOD AS IDENTIFIED BY THE U.S. FEDERAL EMERGENCY MANAGEMENT AGENCY BOUNDARY MAP (FLOOD INSURANCE RATE MAP) COMMUNITY PANEL NUMBER 48491C0490E, EFFECTIVE DATE SEPTEMBER 26, 2008 FOR WILLIAMSON COUNTY, TEXAS AND INCORPORATED AREAS.
3. NO OBSTRUCTIONS, INCLUDING BUT NOT LIMITED TO FENCING OR STORAGE, SHALL BE PERMITTED IN ANY DRAINAGE EASEMENTS SHOWN HEREON.
4. BUILDING SETBACKS SHALL BE IN ACCORDANCE WITH PART III, ZONING AND DEVELOPMENT CODE, CHAPTER 2, ZONING DISTRICTS AND REGULATIONS, CITY OF ROUND ROCK, TEXAS, 2018, AS AMENDED.
5. SIDEWALKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH PART III, ZONING AND DEVELOPMENT CODE, SECTION 6-26, CITY OF ROUND ROCK, TEXAS, 2018, AS AMENDED.
6. A TEN FOOT (10') PUE AND SIDEWALK EASEMENT ABUTTING AND ALONG THE STREET SIDE PROPERTY LINE IS HEREBY CONVEYED FOR ALL STREET SIDE PROPERTY LOTS AS DEPICTED HEREON.

PLAT
THIS SHEET IS FOR REFERENCE ONLY
PLAT
02 OF 72
SZP2020-00002

BRYAN TECHNICAL SERVICES, INC.
911 NORTH MAIN
TAYLOR, TX 76574
PHONE: (512) 352-9090
FAX: (512) 352-9091
FIRM No. 10128500
www.bryantechnicalservices.com

NO.	DATE	REVISIONS	BY

DRAWN BY: CONTRACT	CHECKED BY: BB
SCALE: NTS	APPROVED BY: BB
PROJECT NO. 19-652	DATE: September 20, 2019

Doc # 2019126981

AMENDING PLAT OF REPLAT OF CHANDLER OAKS LOT 8, AND A REPLAT OF CYPRESS COVE SUBDIVISION LOT 2, AND A FINAL PLAT OF 2.905 ACRES OF RELEASED RIGHT OF WAY (CYPRESS BLVD.) DOC. NO. 2015058599

STATE OF CALIFORNIA §

COUNTY OF ORANGE §

THAT BURKE EAGLE NEST II, LLC, A LIMITED LIABILITY COMPANY, AS THE OWNER OF THAT CERTAIN 15.817 ACRE TRACT OF LAND RECORDED IN DOCUMENT NUMBER 2015080039, OF THE OFFICIAL RECORDS OF WILLIAMSON COUNTY, TEXAS DO HEREBY DEDICATE TO THE PUBLIC FOREVER USE OF THE STREETS, ALLEYS, EASEMENTS AND ALL OTHER LANDS INTENDED FOR PUBLIC DEDICATION AS SHOWN HEREON TO BE KNOWN AS AMENDING PLAT OF REPLAT OF CHANDLER OAKS LOT 8, AND A REPLAT OF CYPRESS COVE SUBDIVISION LOT 2, AND A FINAL PLAT OF 2.905 ACRES OF RELEASED RIGHT OF WAY (CYPRESS BLVD.) DOC. NO. 2015058599.

BURKE EAGLE NEST II, LLC

BRIAN BURKE
PRESIDENT

THE STATE OF CALIFORNIA §

COUNTY OF ORANGE §

THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON THE 1st DAY OF October, 2019 BY BRIAN BURKE, AS PRESIDENT OF BURKE EAGLE NEST II, LLC, A TEXAS LIMITED LIABILITY COMPANY, ON BEHALF OF SAID BURKE EAGLE NEST II, LLC.

NOTARY PUBLIC, STATE OF CALIFORNIA

PRINTED NAME: Dana Schneider

MY COMMISSION EXPIRES: 12-23-2021

DANA SCHNEIDER
Notary Public - California
Orange County
Commission # 2223556
My Comm. Expires Dec 23, 2021

STATE OF CALIFORNIA §

COUNTY OF ORANGE §

THAT CHANDLER CREEK PARCEL G & I, L.P., AS THE OWNER OF THAT CERTAIN LOT(S) 8, BLOCK B, CHANDLER OAKS SUBDIVISION, A REPLAT OF LOTS 3 AND 4, OAKMONT CENTRE, SECTION THREE RECORDED, A DEDICATED SUBDIVISION IN WILLIAMSON COUNTY AS RECORDED IN DOCUMENT NO. 2012098474 OF THE OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, PER CONVEYANCE RECORDED IN DOCUMENT NUMBER 2011019080, OF THE OFFICIAL RECORDS OF WILLIAMSON COUNTY, TEXAS DO HEREBY DEDICATE TO THE PUBLIC FOREVER USE OF THE STREETS, ALLEYS, EASEMENTS AND ALL OTHER LANDS INTENDED FOR PUBLIC DEDICATION AS SHOWN HEREON TO BE KNOWN AS AMENDING PLAT OF REPLAT OF CHANDLER OAKS LOT 8, AND A REPLAT OF CYPRESS COVE SUBDIVISION LOT 2, AND A FINAL PLAT OF 2.905 ACRES OF RELEASED RIGHT OF WAY (CYPRESS BLVD.) DOC. NO. 2015058599.

CHANDLER CREEK PARCEL G & I, L.P

BRIAN BURKE
PRESIDENT

THE STATE OF CALIFORNIA §

COUNTY OF ORANGE §

THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON THE 1st DAY OF October, 2019 BY BRIAN BURKE, AS PRESIDENT OF CHANDLER CREEK PARCEL G & I, L.P, A TEXAS LIMITED LIABILITY COMPANY, ON BEHALF OF SAID CHANDLER CREEK PARCEL G & I, L.P.

NOTARY PUBLIC, STATE OF CALIFORNIA

PRINTED NAME: Dana Schneider

MY COMMISSION EXPIRES: 12-23-2021

DANA SCHNEIDER
Notary Public - California
Orange County
Commission # 2223556
My Comm. Expires Dec 23, 2021

STATE OF CALIFORNIA §

COUNTY OF ORANGE §

THAT THE BANK OF THE WEST, THE LIEN HOLDER OF THAT CERTAIN 15.817 ACRE TRACT OF LAND RECORDED IN DOCUMENT NUMBER 2015080039, OF THE OFFICIAL RECORDS OF WILLIAMSON COUNTY, TEXAS DO HEREBY CONSENT TO THE SUBDIVISION OF THAT CERTAIN 15.817 ACRE TRACT OF LAND SITUATED IN THE CITY OF ROUND ROCK, WILLIAMSON COUNTY, TEXAS, AND DO FURTHER HEREBY JOIN, APPROVE, AND CONSENT TO THE DEDICATION TO THE PUBLIC FOREVER USE OF THE STREETS, ALLEYS, EASEMENTS AND ALL OTHER LANDS INTENDED FOR PUBLIC DEDICATION AS SHOWN HEREON.

BANK OF THE WEST, a CALIFORNIA BANKING CORPORATION
(NAME OF THE LIEN HOLDER)

BY: _____ ITS DIRECTOR
JON ELY

THE STATE OF California §

COUNTY OF Orange §

THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON THE 19th DAY OF December, 2019 BY, Jon Ely

NOTARY PUBLIC, STATE OF California

PRINTED NAME: Tracy Lee Epps

MY COMMISSION EXPIRES: 10-23-2021

TRACY LEE EPPS
Notary Public - California
Orange County
Commission # 2215790
My Comm. Expires Oct 23, 2021

THE STATE OF TEXAS §

COUNTY OF WILLIAMSON §

THAT I, BRUCE L. BRYAN, DO HEREBY CERTIFY THAT I PREPARED THIS PLAT FROM AN ACTUAL AND ACCURATE ON-THE-GROUND SURVEY OF THE LAND AND THAT THE CORNER MONUMENTS SHOWN THEREON WERE PROPERLY PLACED UNDER MY PERSONAL SUPERVISION, IN ACCORDANCE WITH CHAPTER 4, SUBDIVISION DESIGN AND CONSTRUCTION, PART III – ZONING AND DEVELOPMENT CODE, CODE OF ORDINANCES, CITY OF ROUND ROCK, 2018 EDITION AS AMENDED.

SIGNATURE AND SEAL OF LICENSED SURVEYOR
BRUCE LANE BRYAN

9-20-19
DATE

STATE OF TEXAS
REGISTERED
BRUCE LANE BRYAN
4249
PROFESSIONAL
LAND SURVEYOR

THE STATE OF TEXAS §

COUNTY OF WILLIAMSON §

THAT I, TERRY R. HAGOOD, DO HEREBY CERTIFY THAT THE INFORMATION CONTAINED ON THIS PLAT COMPLIES WITH CHAPTER 4, SUBDIVISION DESIGN AND CONSTRUCTION, PART III – ZONING AND DEVELOPMENT CODE, CODE OF ORDINANCES, CITY OF ROUND ROCK, 2018 EDITION AS AMENDED, AND THE DESIGN AND CONSTRUCTION STANDARDS ADOPTED BY THE CITY OF ROUND ROCK, TEXAS.

SIGNATURE AND SEAL OF LICENSED ENGINEER
TERRY R. HAGOOD

9/23/2019
DATE

STATE OF TEXAS
REGISTERED
TERRY R. HAGOOD
52960
PROFESSIONAL ENGINEER

APPROVED THIS 27 DAY OF December 2019, BY THE PLANNING AND DEVELOPMENT SERVICES DEPARTMENT OF THE CITY OF ROUND ROCK, TEXAS, AND AUTHORIZED TO BE FILED FOR RECORD BY THE COUNTY CLERK OF WILLIAMSON COUNTY, TEXAS.

THE PROPERTY COVERED BY THIS PLAT IS WITHIN THE CITY LIMITS OF THE CITY OF ROUND ROCK.

12/27/19
BRAD WISEMAN, DIRECTOR
CITY OF ROUND ROCK PLANNING AND DEVELOPMENT SERVICES DEPARTMENT

THE STATE OF TEXAS §

COUNTY OF WILLIAMSON §

THAT I, NANCY RISTER, CLERK OF THE COUNTY COURT OF SAID COUNTY, DO HEREBY CERTIFY THAT THE FOREGOING INSTRUMENT IN WRITING, WITH ITS CERTIFICATION OF AUTHENTICATION, WAS FILED FOR RECORD IN MY OFFICE ON THE 26th DAY OF December A.D. 2019, AT 2:25 O'CLOCK P M. AND DULY RECORDED ON THE 31st DAY OF December, A.D. 2019 AT 2:52 O'CLOCK P M. IN THE PLAT RECORDS OF SAID COUNTY, IN DOCUMENT NO. 2019126981

WITNESS MY HAND AND SEAL OF THE COUNTY COURT OF SAID COUNTY, AT OFFICE IN GEORGETOWN, TEXAS, THE DATE LAST ABOVE WRITTEN.

NANCY RISTER, CLERK, COUNTY COURT
WILLIAMSON COUNTY, TEXAS

BY: Brenda McKenzie
DEPUTY
Brenda McKenzie

COUNTY COURT
WILLIAMSON COUNTY, TEXAS

BRYAN TECHNICAL SERVICES, INC.
911 NORTH MAIN
TAYLOR, TX 76574
PHONE: (512) 352-9090
FAX: (512) 352-9091
FIRM No. 10128500
www.bryantechnicalservices.com

NO.	DATE	REVISIONS	BY

DRAWN BY: CONTRACT	CHECKED BY: BB
SCALE: NTS	APPROVED BY: BB
PROJECT NO. 19-652	DATE: September 20, 2019

9/20/2019 9:10 AM

FP1907-003

PLAT
THIS SHEET IS FOR REFERENCE ONLY
PLAT2
03 OF 72
SDP2208-0002

13-018.2PLAT2, 4/30/2023 1:20:08 PM, TerryH

LEGEND OF SYMBOLS

- air conditioner
- borehole
- CATV cable tv
- EM electric meter
- fence or handrail
- FDC fire dept. connection
- FH fire hydrant
- FIRE fire lane
- guard rail
- GP grease trap
- bollard
- Google 360 Hyperlink
- GI gate inlet
- GM gas meter
- GAS gas line
- GUY utility pole anchor
- IV irrigation valve
- landscape or tree line
- LEB landscape electric box
- LSL landscape light
- LP light pole
- MB mailbox
- MW monitoring well
- OU overhead utility lines
- PE pool equipment
- road sign
- RD roof drain
- silt fence
- 856.7' spot elevation
- SSMH sanitary sewer manhole
- sanitary sewer pipe
- SDMH storm water manhole
- storm water pipe
- TMH telephone manhole
- TFL tank fill lid
- TR telephone riser
- traffic signal pole
- UMH unknown manhole
- CO utility clean out
- UC utility cabinet
- UV utility vault
- utility markings (line color = color of markings)
- UP utility pole
- UP/UG utility pole with riser
- utility sign
- WV water shutoff
- water valve
- water manhole
- WM water meter
- well
- water line
- one-foot contour lines
- tree trunk (with canopy)
- caliper inches at breast height
- ornamental tree
- (M) multiple trunks

NOTE - Some items may not pertain to this survey. The identification is subject to interpretation, verification may be required.

DIG-TESS MARKED UTILITY LEGEND

- ELECTRIC
- GAS-OIL-STEAM
- COMMUNICATION-CATV
- WATER
- SEWER
- STORM

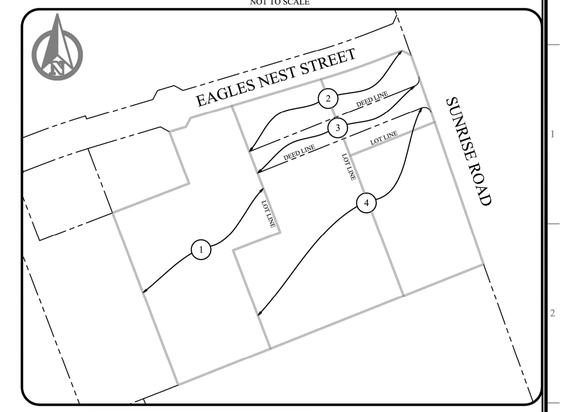
LEGEND OF RECORD CALLS & REFERENCES

{X XX°XX'XX" X XX.XX'} - INST.# 2019126981, O.P.R.W.C.T.
[record bearing and distance]

[X XX°XX'XX" X XX.XX'] - INST.# 2015080039, O.P.R.W.C.T.
[record bearing and distance]

VESTING DEED DETAIL

NOT TO SCALE



LEGEND OF DEED REFERENCES

1. BURKE EAGLES NEST II, L.P., A TEXAS LIMITED PARTNERSHIP INST.# 2020035381, O.P.R.W.C.T.
2. PORTION OF CHANDLER CREEK PARCEL J&K, L.P., A TEXAS LIMITED PARTNERSHIP CALLED 5.17 ACRES INST.# 2016122843, O.P.R.W.C.T.
3. PORTION OF CHANDLER CREEK PARCEL J&K, L.P., A TEXAS LIMITED PARTNERSHIP CALLED 2.829 ACRES INST.# 2015098414, O.P.R.W.C.T.
4. PORTION OF CHANDLER CREEK PARCEL J&K, L.P., A TEXAS LIMITED PARTNERSHIP CALLED TRACT 6 | 23.818 ACRES INST.# 2011019079, O.P.R.W.C.T.

Tree Table	
Point	Size & Species
61340	8" CEDAR ELM
61341	10.5" CEDAR ELM
61342	9" CEDAR ELM
61343	7.5" CEDAR ELM
61344	8" CEDAR ELM (M) 4.5", 4", 3"
61345	6" CEDAR ELM
61346	7" CEDAR ELM
61347	9" CEDAR ELM
61348	8" CEDAR ELM
61349	6" CEDAR ELM (M) 4", 4"
61350	26" OAK (M) 13", 10", 10", 6"
61351	11" GUM-BULLY (M) 8", 6"
61352	7" CEDAR
61353	7" CEDAR

NOTE: Only trees with diameters of 6 inches or greater at chest height were located for the purpose of this survey.

LEGEND OF EASEMENT HATCH PATTERNS

- PUBLIC UTILITY EASEMENT INST.# 2018106695, O.P.R.W.C.T.
- WATERLINE EASEMENT INST.# 2019031216, O.P.R.W.C.T.
- WASTEWATER EASEMENT INST.# 2019031217, O.P.R.W.C.T.
- STORM SEWER AND DRAINAGE EASEMENT INST.# 2019031215, O.P.R.W.C.T.
- WATERLINE EASEMENT INST.# 2020052560, O.P.R.W.C.T.
- WASTEWATER LINE EASEMENT INST.# 2010058163, O.P.R.W.C.T.
- TRAFFIC SIGNAL ESMT INST.# 2011027743, O.P.R.W.C.T.

Curve Data Table					
Curve #	Arc	Radius	Delta	Chord Bearing	Chord
C1	215.05'	2550.00'	004°49'55"	N71°03'04"E	214.99'

Record Curve Data Table					
Curve #	Arc	Radius	Delta	Chord Bearing	Chord
C1	[215.06']	[2550.00']	[004°49'55"]	[S71°02'54"W]	[215.06']

Line Data Table		
Line #	Bearing	Distance
L1	N73°28'02"E	60.00'
L2	N28°28'02"E	35.36'
L3	N73°28'02"E	11.43'
L4	N68°38'06"E	73.40'
L5	S65°27'11"E	34.65'
L6	S18°59'59"E	37.66'

Record Line Data Table		
Line #	Bearing	Distance
L1	[N73°27'52"E]	[60.00']
L2	[N28°27'36"E]	[35.35']
L3	[N73°27'52"E]	[11.74']
L4	[N68°37'56"E]	[73.40']
L5	[S62°35'20"E]	[36.09']
L6	[S18°59'30"E]	[37.66']

SURVEY
THIS SHEET IS FOR REFERENCE ONLY

SRV

04 OF 72

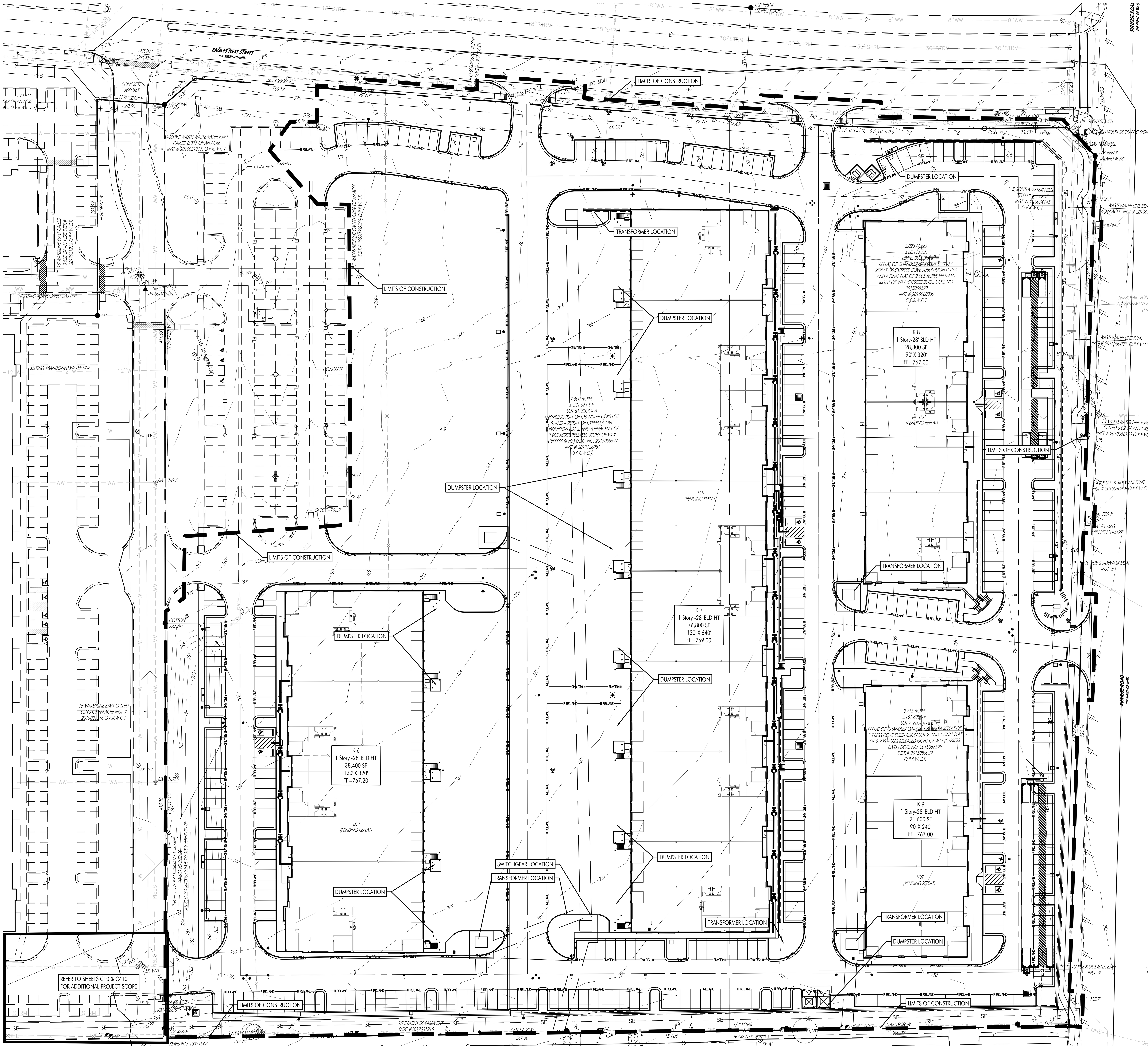
SDP2208-0002

JPH LaND Surveying, Inc.

JPH Job/Drawing No. (see below)
2022.252.001 Eagles Nest 3, Round Rock, Wilco., TX - TOPO.dwg

1516 E. Palm Valley Blvd., Ste. A4, Round Rock, Texas 78664
Telephone (817) 431-4971 www.jphlandsurveying.com
TBPELS Firm #10019500
DFW | Central Texas | West Texas | Houston

Scale: 1" = 50'



SCALE: 1 INCH = 40 FEET

TYPE OF CONSTRUCTION	
BUILDING OCCUPANCY TYPE:	B & S-1
TYPE OF CONSTRUCTION:	II-A
HEIGHT:	24'-28'

PROPOSED USAGE	OFFICE WAREHOUSE
LANDSCAPE AREA:	1.89 ACRES
LOT ACREAGE:	13.36

CALCULATIONS	BUILDING USE CATEGORY		
BUILDING AREAS	WAREHOUSE	OFFICE	TOTAL
BUILDING 'K.6' FOOTPRINT AREA	19,200 (50%)	19,200 (50%)	38,400
BUILDING 'K.7' FOOTPRINT AREA	57,600 (75%)	19,200 (25%)	76,800
BUILDING 'K.8' FOOTPRINT AREA	7,200 (25%)	21,600 (75%)	28,800
BUILDING 'K.9' FOOTPRINT AREA	5,400 (25%)	16,200 (75%)	21,600
	89,400	76,200	165,600

PARKING REQUIREMENTS	1 SP/2,500 SF	1 SP/250 SF	
BUILDING 'K.6' PARKING CALCULATIONS	8	77	85
BUILDING 'K.7' PARKING CALCULATIONS	23	77	101
BUILDING 'K.8' PARKING CALCULATIONS	3	86	89
BUILDING 'K.9' PARKING CALCULATIONS	2	65	67
			343

PARKING COUNTS	REQUIRED	PROVIDED	ADA PROVIDED
BUILDING 'K1' PARKING	85	85	3 w/ 1 VAN
BUILDING 'K2' PARKING	101	114	4 w/ 1 VAN
BUILDING 'K3' PARKING	89	105	5 w/ 1 VAN
BUILDING 'K4' PARKING	67	69	5 w/ 1 VAN
		373	

LEGEND

- IRON ROD FOUND/SET
- CONCRETE MONUMENT FOUND/SET
- NAIL FOUND/SET
- PIPE FOUND
- STORMWATER MANHOLE (DRAWN TO SCALE)
- JUNCTION BOX (DRAWN TO SCALE)
- GRATE INLET (DRAWN TO SCALE)
- WASTEWATER MANHOLE (DRAWN TO SCALE)
- WASTEWATER CLEANOUT
- GAS TEST STATION
- GAS METER
- ELECTRIC METER
- LIGHT POLE
- SIGNAL LIGHT POLE
- UTILITY POLE
- TELEPHONE MANHOLE
- FIRE HYDRANT
- GATE VALVE
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- EXISTING CONTOURS
- CONTOUR
- CURB AND GUTTER
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- EXISTING FORCE MAIN (SIZE VARIES)
- EXISTING FIBER OPTIC LINE
- EXISTING GAS LINE (SIZE VARIES)
- BENCHMARK LOCATION
- EXISTING TREE TO REMAIN (SIZE VARIES)
- EXISTING TREE TO BE REMOVED (SIZE VARIES)
- MONARCH/HERITAGE TREE (SIZE VARIES)
- PARKING COUNT
- PARCEL LINES
- HANDICAP ROUTE

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11.04.2022

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TERRY R. HAGOOD
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Round Rock, TX 78664
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TBPE Reg. No. F-12709

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ISSUED FOR: AGENCY REVIEW

. Eagles Nest 3
Lot KE - Bldgs. 6-9

3259 Eagles Nest St.
Round Rock, Texas,
78665

Issue

1	09.23.2022	50% CD - Pricing
2	11.04.2022	95% CD
3	12.05.2022	CORR/TCEQ
4	4.30.2023	TCEQ UPDATE

Project Number: 22-019g
Drawn By: JSR
Checked By: RB

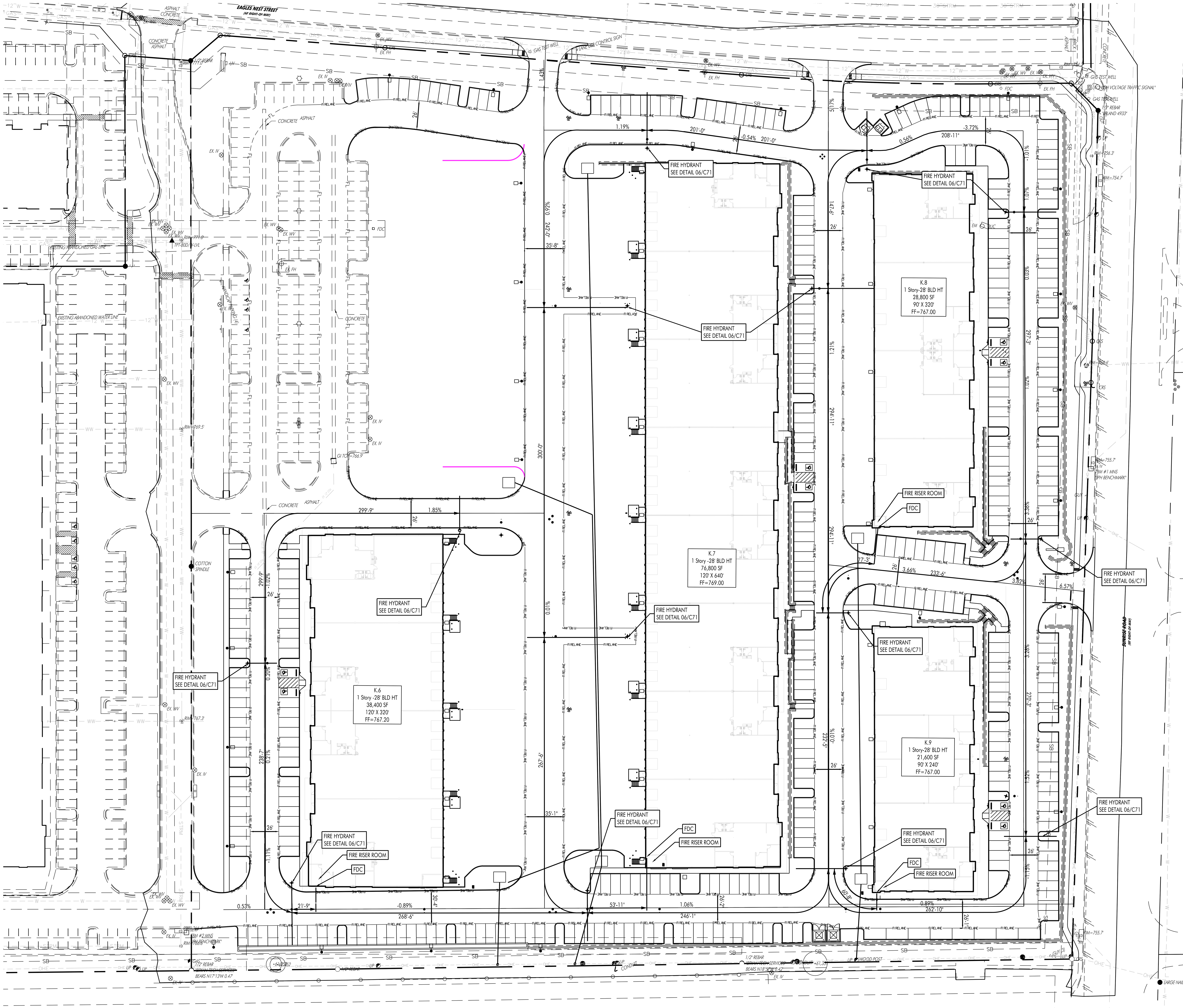
SITE PLAN

SP

05

SDP2208-0002

13-018.2SP, 4/30/2023 1:20:42 PM, TerryH



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Lot KE - Bldgs. 6-9

3259 Eagles Nest St.
Round Rock, Texas,
78665

NOTES:

1. FIRE LANE STRIPING TO BE 6" WIDE RED PAINT WITH "FIRE LANE-NO PARKING" IN 4" TALL WHITE LETTERS. WORDING MAY NOT BE SPACED MORE THAN 30 FEET APART. STRIPING TO BE PAINTED ON FACE OF CURB WHEN PRESENT AND PAINTED FLAT ON PARKING SURFACE WHEN IT IS NOT.
2. ALL DIMENSIONS ARE TO THE FACE OF CURB, OR CENTER OF STRIPING (WHERE APPLICABLE), UNLESS OTHERWISE NOTED.
3. FIRE LANES SHALL BE SURFACED SO AS TO PROVIDE ALL-WEATHER DRIVING SURFACE CAPABLE OF SUPPORTING THE IMPOSED LOAD OF FIRE APPARATUS WEIGHING AT LEAST 80,000 LBS BEFORE ANY COMBUSTIBLE MATERIALS ARE ALLOWED ON SITE.
4. VERTICAL CLEARANCE OF FIRE LANE SHALL BE MINIMUM OF 13'-6".
5. MAINTAIN A 3' MINIMUM CLEAR SPACE AROUND ALL FIRE HYDRANTS.
6. UNDERGROUND FLUSH TEST CERTIFICATE SHALL BE PROVIDED TO FIRE MARSHAL'S OFFICE PRIOR TO SYSTEM ACCEPTANCE.
7. PAVEMENT GRADES THROUGH THE FIRE LANE ACCESS SHALL NOT BE GREATER THAN 7% AND GRADE BREAKS NOT GREATER THAN 3%.

Issue

1	09.23.2022	50% CD - Pricing
2	11.04.2022	95% CD
3	12.05.2022	CORR/TCEQ
4	4.30.2023	TCEQ UPDATE

Project Number: 22-019g
Drawn By: JSR
Checked By: RB

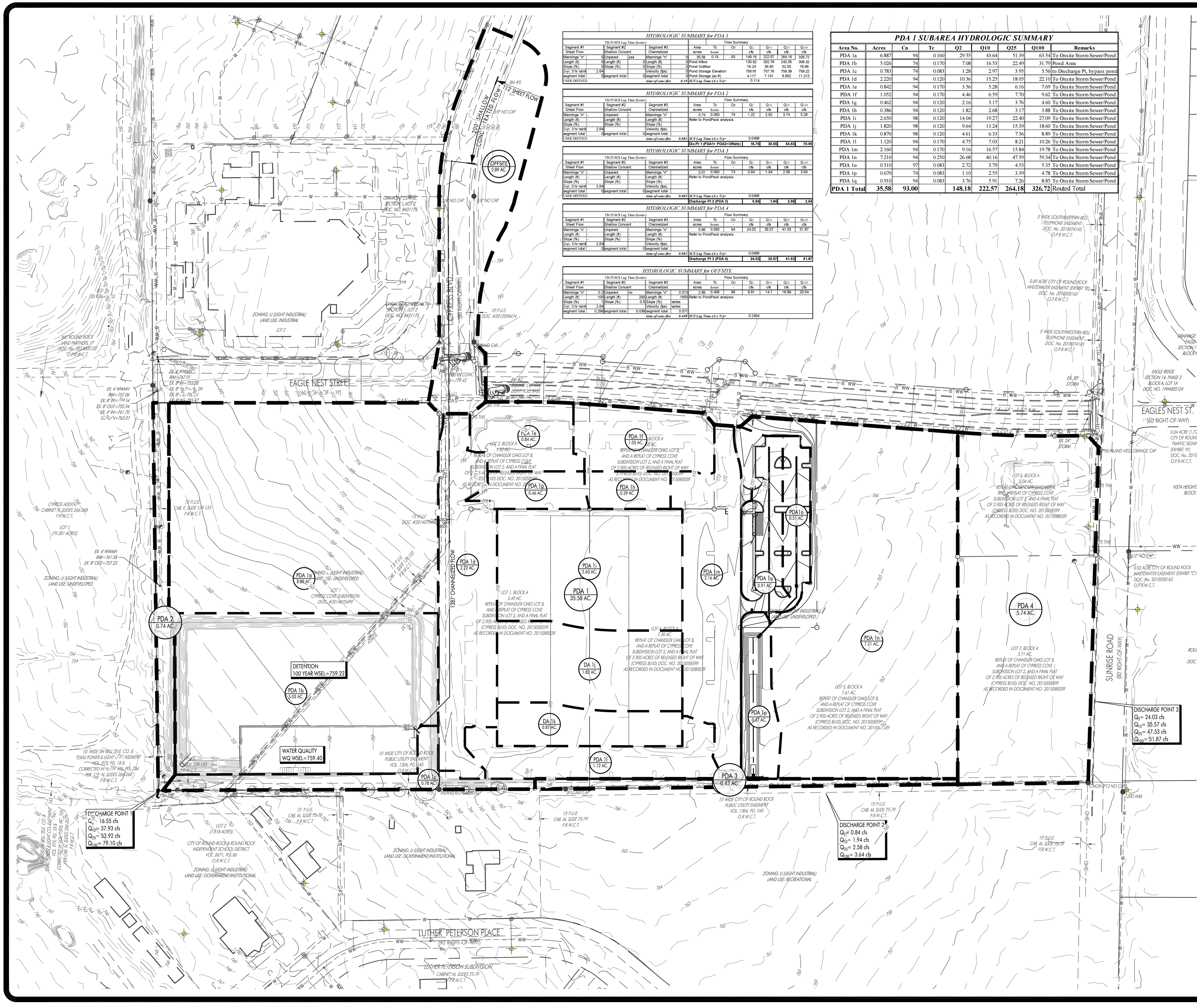
FIRE SAFETY PLAN

FIRE

06

SDP2208-0002

13-108.2FIRE, 4/30/2023 1:21:06 PM, TerryH



HYDROLOGIC SUMMARY for PDA 1

TR-55 SCS Lag Time (hours)						Flow Summary						
Segment #1 Sheet Flow		Segment #2 Shallow Concent		Segment #3 Channelized		Area acres	Tc hours	Cn -	Q_2 cfs	Q_{10} cfs	Q_{25} cfs	Q_{100} cfs
Mannings "n"	0	Unpaved	yes	Mannings "n"	0	35.58	0.19	93	148.18	222.57	264.18	326.72
Length (ft)	0	Length (ft)	0	Length (ft)	0	Pond Inflow			130.82	202.76	242.05	306.32
Slope (%)	0	Slope (%)	0	Slope (%)	0	Pond Outflow			16.24	36.95	52.55	76.88
2-yr, 3 hr rainfa	2.64			Velocity (fps)	0	Pond Storage Elevation			756.61	757.76	758.39	759.22
segment total	0	segment total	0	segment total	0	Pond Storage (ac-ft)			4.117	7.131	8.852	11.213
USER DEFINED				time of conc.(hrs	0.19	SCS Lag Time (.6 x Tc)=			0.114			

HYDROLOGIC SUMMARY for PDA 2

TR-55 SCS Lag Time (hours)						Flow Summary						
Segment #1 Sheet Flow		Segment #2 Shallow Concent		Segment #3 Channelized		Area acres	Tc hours	Cn -	Q_2 cfs	Q_{10} cfs	Q_{25} cfs	Q_{100} cfs
Mannings "n"	-	Unpaved	-	Mannings "n"		0.74	0.083	74	1.22	2.82	3.74	5.28
Length (ft)	-	Length (ft)	-	Length (ft)		Refer to PondPack analysis						
Slope (%)	-	Slope (%)	-	Slope (%)								
2-yr, 3 hr rainfa	2.64			Velocity (fps)								
segment total	0	segment total	0	segment total								
USER DEFINED				time of conc.(hrs	0.083	SCS Lag Time (.6 x Tc)=			0.0498			
						Dis Pt 1 (PDA1+ PDA2+Offsite)			**16.76**	**38.55**	**54.63**	**79.95**

HYDROLOGIC SUMMARY for PDA 3

TR-55 SCS Lag Time (hours)						Flow Summary						
Segment #1 Sheet Flow		Segment #2 Shallow Concent		Segment #3 Channelized		Area acres	Tc hours	Cn -	Q_2 cfs	Q_{10} cfs	Q_{25} cfs	Q_{100} cfs
Mannings "n"	-	Unpaved	-	Mannings "n"		0.51	0.083	74	0.84	1.94	2.58	3.64
Length (ft)	-	Length (ft)	-	Length (ft)		Refer to PondPack analysis						
Slope (%)	-	Slope (%)	-	Slope (%)								
2-yr, 3 hr rainfa	2.64			Velocity (fps)								
segment total	0	segment total	0	segment total								
USER DEFINED				time of conc.(hrs	0.083	SCS Lag Time (.6 x Tc)=			0.0498			
						Discharge Pt 2 (PDA 3)			**0.84**	**1.94**	**2.58**	**3.64**

HYDROLOGIC SUMMARY for PDA 4

TR-55 SCS Lag Time (hours)						Flow Summary						
Segment #1 Sheet Flow		Segment #2 Shallow Concent		Segment #3 Channelized		Area acres	Tc hours	Cn -	Q_2 cfs	Q_{10} cfs	Q_{25} cfs	Q_{100} cfs
Mannings "n"	-	Unpaved	-	Mannings "n"		5.66	0.083	94	24.03	35.57	41.53	51.87
Length (ft)	-	Length (ft)	-	Length (ft)		Refer to PondPack analysis						
Slope (%)	-	Slope (%)	-	Slope (%)								
2-yr, 3 hr rainfa	2.64			Velocity (fps)								
segment total	0	segment total	0	segment total								
				time of conc.(hrs	0.083	SCS Lag Time (.6 x Tc)=			0.0498			
						Discharge Pt 3 (PDA 4)			**24.03**	**35.57**	**41.53**	**51.87**

HYDROLOGIC SUMMARY for OFFSITE

TR-55 SCS Lag Time (hours)						Flow Summary						
Segment #1 Sheet Flow		Segment #2 Shallow Concent		Segment #3 Channelized		Area acres	Tc hours	Cn -	Q_2 cfs	Q_{10} cfs	Q_{25} cfs	Q_{100} cfs
Mannings "n"	0.2	Unpaved	no	Mannings "n"	0.013	2.89	0.409	98	9.81	14.1	16.69	20.54
Length (ft)	100	Length (ft)	200	Length (ft)	1650	Refer to PondPack analysis						
Slope (%)	1	Slope (%)	0.5	Slope (%)	varies							
2-yr, 3 hr rainfa	2.64			Velocity (fps)	varies							
segment total	0.299	segment total	0.039	segment total	0.071							
				time of conc.(hrs	0.409	SCS Lag Time (.6 x Tc)=			0.2454			

PDA 1 SUBAREA HYDROLOGIC SUMMARY

Area No.	Acres	Cn	Tc	Q2	Q10	Q25	Q100	Remarks
PDA 1a	6.887	94	0.160	29.55	43.64	51.39	63.54	To Onsite Storm Sewer/Pond
PDA 1b	5.026	74	0.170	7.08	16.53	22.49	31.79	Pond Area
PDA 1c	0.783	74	0.083	1.28	2.97	3.95	5.56	to Discharge Pt, bypass pond
PDA 1d	2.220	94	0.120	10.36	15.25	18.05	22.10	To Onsite Storm Sewer/Pond
PDA 1e	0.842	94	0.170	3.56	5.28	6.16	7.69	To Onsite Storm Sewer/Pond
PDA 1f	1.052	94	0.170	4.46	6.59	7.70	9.62	To Onsite Storm Sewer/Pond
PDA 1g	0.462	94	0.120	2.16	3.17	3.76	4.60	To Onsite Storm Sewer/Pond
PDA 1h	0.386	94	0.120	1.82	2.68	3.17	3.88	To Onsite Storm Sewer/Pond
PDA 1i	2.650	98	0.120	14.04	19.27	22.40	27.09	To Onsite Storm Sewer/Pond
PDA 1j	1.820	98	0.120	9.64	13.24	15.39	18.60	To Onsite Storm Sewer/Pond
PDA 1k	0.870	98	0.120	4.61	6.33	7.36	8.89	To Onsite Storm Sewer/Pond
PDA 1l	1.120	94	0.170	4.75	7.03	8.21	10.26	To Onsite Storm Sewer/Pond
PDA 1m	2.160	94	0.170	9.16	16.57	15.84	19.78	To Onsite Storm Sewer/Pond
PDA 1n	7.210	94	0.250	26.68	40.16	47.59	59.34	To Onsite Storm Sewer/Pond
PDA 1o	0.510	97	0.083	2.72	3.79	4.53	5.35	To Onsite Storm Sewer/Pond
PDA 1p	0.670	74	0.083	1.10	2.55	3.39	4.78	To Onsite Storm Sewer/Pond
PDA 1q	0.910	94	0.083	3.76	5.91	7.26	8.85	To Onsite Storm Sewer/Pond
PDA 1 Total	**35.58**	**93.00**		**148.18**	**222.57**	**264.18**	**326.72**	Routed Total

LEGEND

- IRON ROD FOUND/SET
- CONCRETE MONUMENT FOUND/SET
- NAIL FOUND/SET
- PIPE FOUND
- STORMWATER MANHOLE (DRAWN TO SCALE)
- JUNCTION BOX (DRAWN TO SCALE)
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- EXISTING WATER LINE (SIZE VARIES)
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- EXISTING FORCE MAIN (SIZE VARIES)
- EXISTING FIBER OPTIC LINE
- EXISTING GAS LINE (SIZE VARIES)
- BENCHMARK LOCATION
- EXISTING TREE TO REMAIN (SIZE VARIES)
- EXISTING TREE TO BE REMOVED (SIZE VARIES)

EXISTING DRAINAGE AREA MAP
CORR-SDP 1909-0001
THIS SHEET IS FOR REFERENCE ONLY
EDA
07 OF 72
SDP2208-0002

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TBPE Registration No. F-12709

STATE OF TEXAS
TERRY R. HAGOOD
52960
REGISTERED PROFESSIONAL ENGINEER

DATE SIGNED: 01/07/20
ISSUED FOR: AGENCY REVIEW

SITE DEVELOPMENT
LOT K TENANT ADDITIONAL PARKING
3161 EAGLES NEST STREET
ROUND ROCK, TX 78665

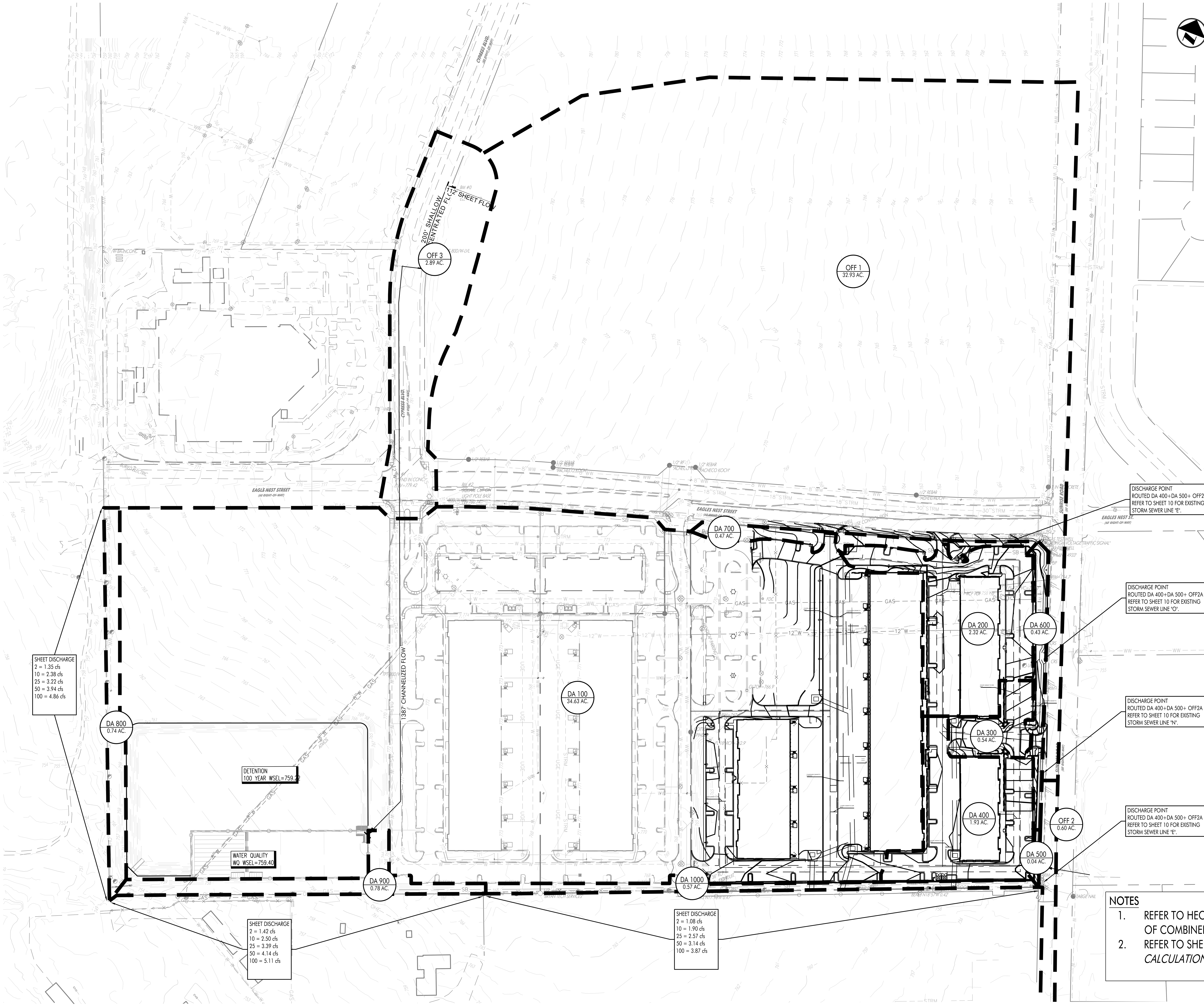
NO.	DATE	DESCRIPTION
	....	....

HEA PROJECT NO. 13-018.1
ISSUED DATE: 01/07/20

PROPOSED DRAINAGE AREA PLAN

SHEET NO.
C50B
13 OF 22
SITE PLAN PERMIT NO. SSP1909-0001

Jan 07,2020-11:48am Z:\HEA\HEA Projects\Projects 13-000\13-018.1 Lot K Tenant Additinal Parking\CAD Files\Civil\SD\C50B.dwg



DISCHARGE POINT
ROUTED DA 400+DA 500+ OFF2A
REFER TO SHEET 10 FOR EXISTING
STORM SEWER LINE "E".

FLOW RATES		
RETURN EVENT	EXISTING	PROPOSED
2	-	8.8400
10	-	13.4300
25	7.8000	16.4800
50	-	18.9400
100	10.0000	21.4700

DISCHARGE POINT
ROUTED DA 400+DA 500+ OFF2A
REFER TO SHEET 10 FOR EXISTING
STORM SEWER LINE "O".

FLOW RATES		
RETURN EVENT	EXISTING	PROPOSED
2	-	5.0900
10	-	7.5700
25	7.8000	9.2200
50	-	10.5500
100	10.0000	11.9200

DISCHARGE POINT
ROUTED DA 400+DA 500+ OFF2A
REFER TO SHEET 10 FOR EXISTING
STORM SEWER LINE "N".

FLOW RATES		
RETURN EVENT	EXISTING	PROPOSED
2	-	3.7700
10	-	5.8600
25	7.8000	7.2800
50	-	8.4400
100	10.0000	9.6200

DISCHARGE POINT
ROUTED DA 400+DA 500+ OFF2A
REFER TO SHEET 10 FOR EXISTING
STORM SEWER LINE "E".

FLOW RATES		
RETURN EVENT	EXISTING	PROPOSED
2	-	4.6900
10	-	6.2900
25	7.8000	7.6200
50	-	8.5400
100	10.0000	9.4700

NOTES

1. REFER TO HEC-HMS MODEL FOR ROUTING OF COMBINED DRAINAGE AREAS
2. REFER TO SHEET 10 *"DRAINAGE AREA CALCULATIONS"*.

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Project Number: 22-019g
Drawn By: JSR
Checked By: RB

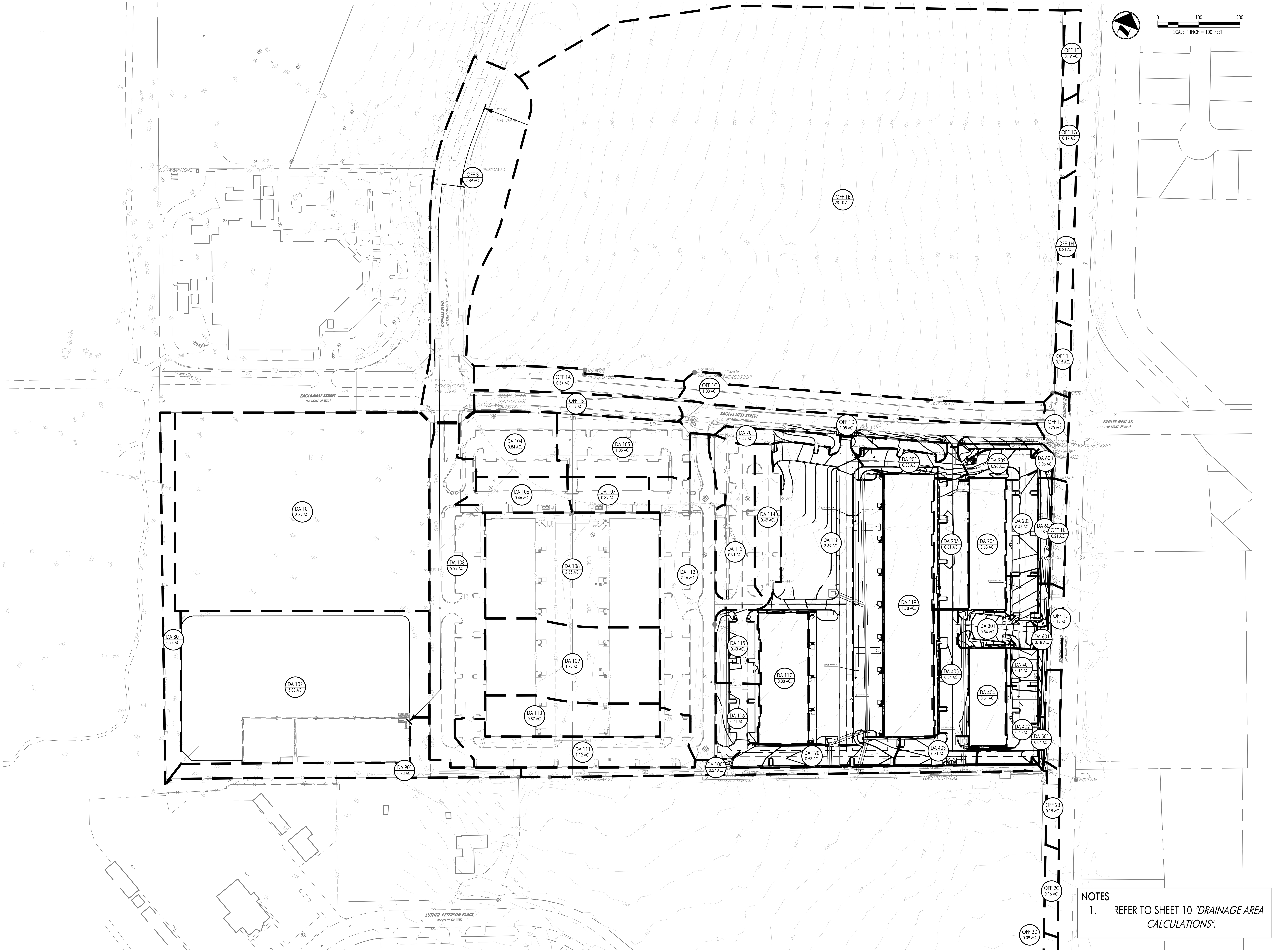
OVERALL DRAINAGE AREA MAP

PDA OVERALL

08

SDP2208-0002

13-018.2 PDA OVERALL, 4/30/2023 1:21:49 PM, TerryH



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DATE SIGNED: 4/30/2023
ISSUED FOR: AGENCY REVIEW

. Eagles Nest 3
Lot KE - Bldgs. 6-9

3259 Eagles Nest St.
Round Rock, Texas,
78665

Issue

1	09.23.2022	50% CD - Pricing
2	11.04.2022	95% CD
3	12.05.2022	CORR/TCEQ
4	4.30.2023	TCEQ UPDATE

Project Number: 22-019g
Drawn By: JSR
Checked By: RB

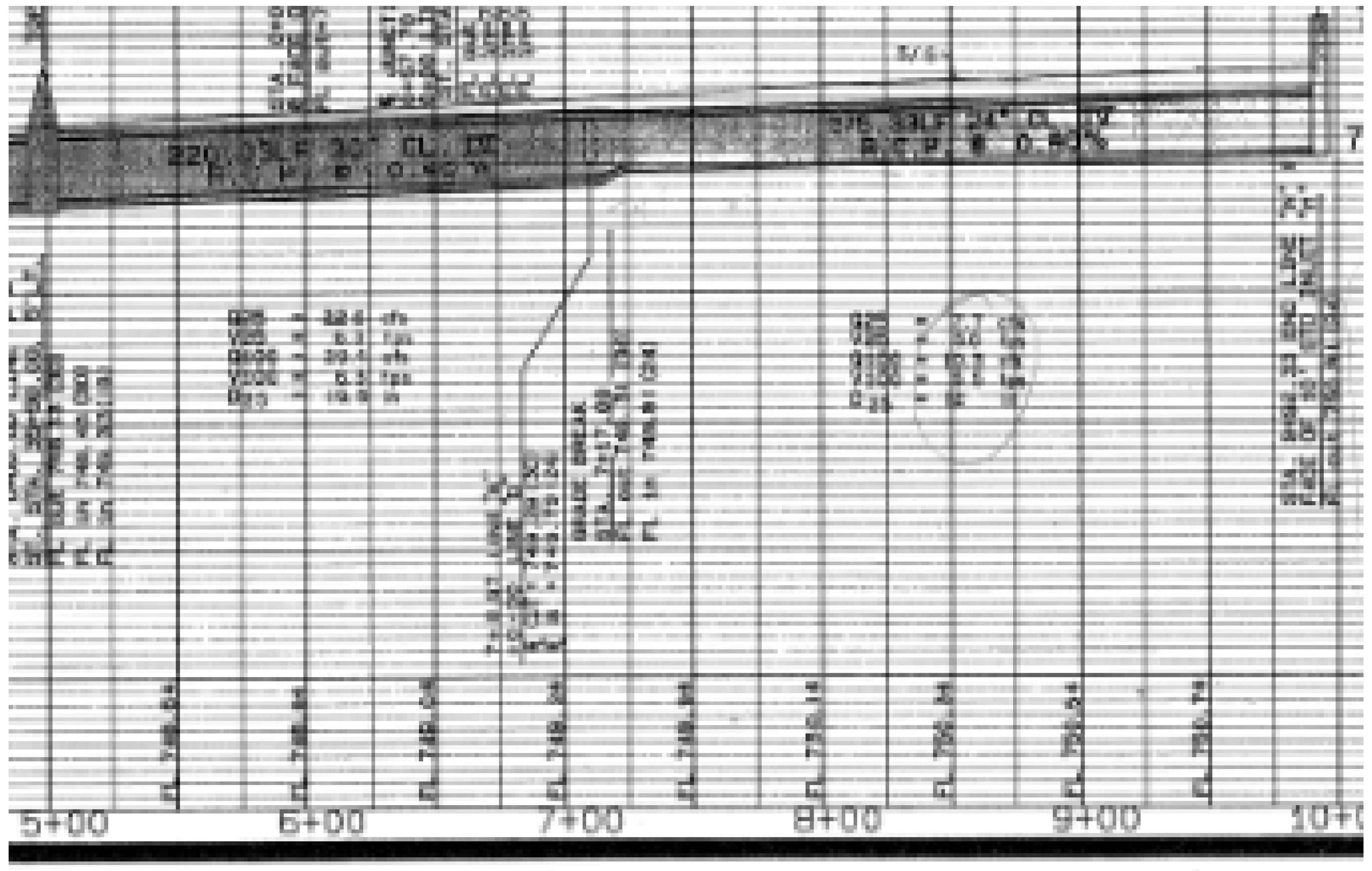
PROPOSED DRAINAGE AREA MAP

PDA

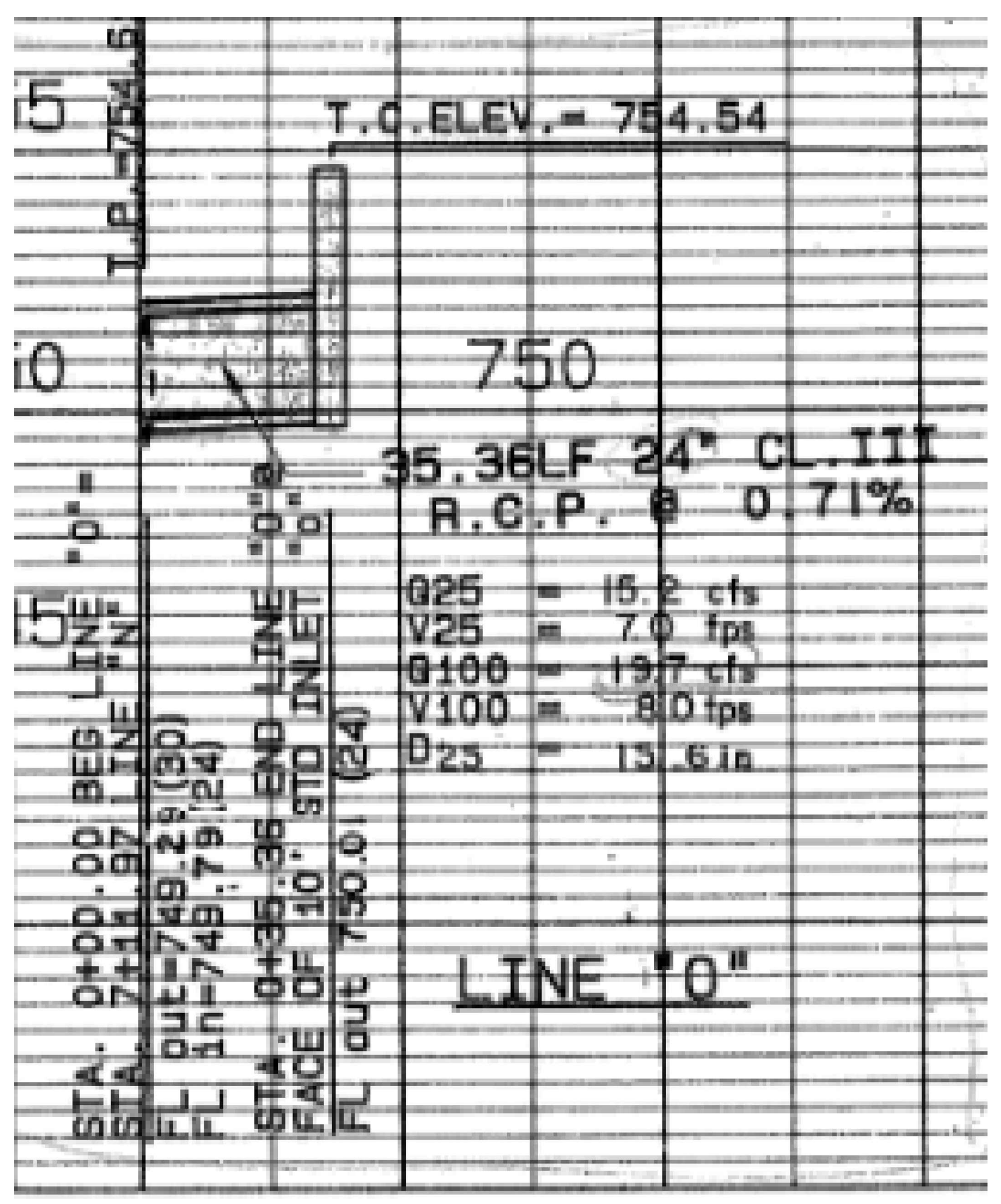
09

SDP2208-0002

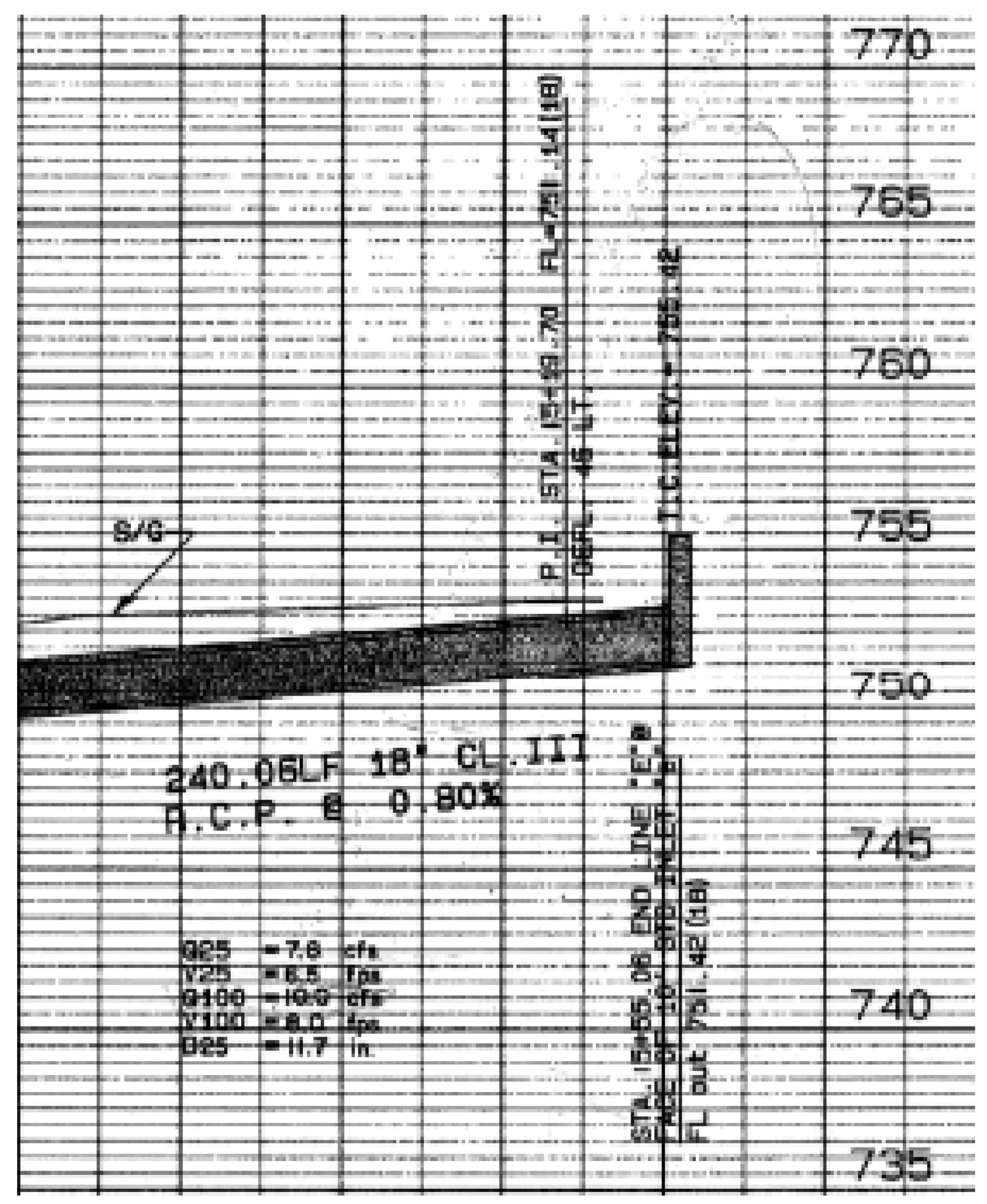
13-018.2 PDA, 4/30/2023 1:21:57 PM, TerryH



LINE "E" - SHEET 12 OF RECORD PLANS



LINE "O" - SHEET 13 OF RECORD PLANS



LINE "N" - SHEET 13 OF RECORD PLANS

THESE PROFILE SNIPS ARE FROM *"THE NORTHEAST ROUND ROCK ROAD DISTRICT NO.1"* PLANS DATED 1-3-1990 BY HAYNIE & KALLMAN INC.

ATLAS 14 HEC-HMS HYDROLOGIC ROUTING SUMMARY for DA 100

TR-55 SCS Lag Time (hours)										Flow Summary							
Segment #1		Segment #2		Segment #3		Segment #4		Segment #5		Area	Tc	Cn	Q2	Q10	Q25	Q50	Q100
Sheet Flow		Shallow Concent		Shallow Concent		Channelized		Channelized		acres	hours	-	cfs	cfs	cfs	cfs	cfs
Mannings "n"	0.011	Unpaved	yes	Unpaved	yes	Mannings "n"	0.013	Mannings "n"	0.013	40.16	0.139	79	152.9	211.7	260.2	300.1	376.53
Length (ft)	100	Length (ft)	75	Length (ft)	914	Length (ft)	966	Length (ft)	562	*Impervious Cvr =*		69.5%					
Slope (%)	8	Slope (%)	0.8	Slope (%)	3	Slope (%)	4	Slope (%)	4	*Pond Outflow =*			*17.00*	*36.3*	*53.1*	*68.4*	*91.1*
2-yr, 3 hr rainfall	4.06					Velocity (fps)	38.333	Velocity (fps)	4.108	*Peak Storage (ac-ft) =*			*4.7*	*7.4*	*9.3*	*10.8*	*12.48*
segment total	0.008	segment total	0.014	segment total	0.072	segment total	0.007	segment total	0.038	*Water Surface Elev (ft) =*			*756.8*	*757.9*	*758.6*	*759.1*	*759.7*
								time of conc.(hrs)	*0.139*	*SCS Lag Time (.6 x Tc)=*			0.0834	hours		5.0	minutes

DEVELOPED SUB AREA 100 DRAINAGE SUMMARY

DA No.	Acres	Sq. Mi.	%IC	Tc	C2	I2	Q2	C10	I10	Q10	C25	I25	Q25	C50	I50	Q50	C100	I100	Q100	Remarks
101	2.889	0.0045	41.8	10	0.47	6.24	8.54	0.54	9.13	14.30	0.59	11.10	19.07	0.63	12.60	22.90	0.67	14.20	27.62	piped flow
102	6.887	0.0108	75.0	10	0.62	6.24	26.64	0.70	9.13	43.70	0.76	11.10	57.90	0.80	12.60	68.98	0.84	14.20	82.39	piped flow
103	5.026	0.0079	2.7	74	0.30	6.24	9.47	0.36	9.13	16.63	0.40	11.10	22.50	0.43	12.60	27.45	0.47	14.20	33.81	piped flow
104	2.216	0.0035	74.1	5	0.62	6.24	8.52	0.69	9.13	13.98	0.75	11.10	18.52	0.79	12.60	22.07	0.84	14.20	26.36	piped flow
105	0.842	0.0013	66.2	5	0.58	6.24	3.06	0.65	9.13	5.03	0.71	11.10	6.68	0.75	12.60	7.97	0.80	14.20	9.54	piped flow
106	1.051	0.0016	73.9	5	0.62	6.24	4.03	0.69	9.13	6.62	0.75	11.10	8.77	0.79	12.60	10.45	0.84	14.20	12.49	piped flow
107	0.462	0.0007	96.5	5	0.71	6.24	2.06	0.79	9.13	3.35	0.86	11.10	4.42	0.90	12.60	5.25	0.95	14.20	6.25	piped flow
108	0.386	0.0006	96.0	5	0.71	6.24	1.72	0.79	9.13	2.79	0.86	11.10	3.69	0.90	12.60	4.38	0.95	14.20	5.21	piped flow
109	2.648	0.0041	93.9	5	0.70	6.24	11.62	0.78	9.13	18.90	0.85	11.10	24.99	0.89	12.60	29.68	0.94	14.20	35.30	piped flow
110	1.822	0.0028	99.3	5	0.73	6.24	8.27	0.81	9.13	13.42	0.88	11.10	17.73	0.92	12.60	21.04	0.97	14.20	25.01	piped flow
111	0.868	0.0014	99.5	5	0.73	6.24	3.94	0.81	9.13	6.40	0.88	11.10	8.45	0.92	12.60	10.03	0.97	14.20	11.92	piped flow
112	0.823	0.0013	100.0	5	0.73	6.24	3.75	0.81	9.13	6.09	0.88	11.10	8.04	0.92	12.60	9.54	0.97	14.20	11.34	piped flow
113	2.156	0.0034	75.1	5	0.62	6.24	8.35	0.70	9.13	13.69	0.76	11.10	18.14	0.80	12.60	21.61	0.84	14.20	25.81	piped flow
114	0.910	0.0014	65.9	5	0.58	6.24	3.29	0.65	9.13	5.43	0.71	11.10	7.20	0.75	12.60	8.59	0.80	14.20	10.29	
115	0.493	0.0008	94.4	5	0.71	6.24	2.17	0.78	9.13	3.53	0.85	11.10	4.67	0.89	12.60	5.54	0.94	14.20	6.59	
116	0.434	0.0007	69.3	5	0.59	6.24	1.61	0.67	9.13	2.65	0.73	11.10	3.51	0.77	12.60	4.19	0.81	14.20	5.01	
117	0.410	0.0006	70.8	5	0.60	6.24	1.54	0.68	9.13	2.53	0.74	11.10	3.35	0.77	12.60	4.00	0.82	14.20	4.78	
118	0.884	0.0014	100.0	5	0.73	6.24	4.02	0.81	9.13	6.53	0.88	11.10	8.63	0.92	12.60	10.24	0.97	14.20	12.17	
119	4.010	0.0063	66.7	5	0.58	6.24	14.60	0.66	9.13	24.05	0.72	11.10	31.91	0.75	12.60	38.07	0.80	14.20	45.56	
120	1.759	0.0027	100.0	5	0.73	6.24	8.01	0.81	9.13	13.00	0.88	11.10	17.18	0.92	12.60	20.39	0.97	14.20	24.22	
121	0.642	0.0010	96.0	5	0.71	6.24	2.86	0.79	9.13	4.64	0.86	11.10	6.14	0.90	12.60	7.29	0.95	14.20	8.66	
122	0.560	0.0009	94.5	5	0.71	6.24	2.46	0.78	9.13	4.01	0.85	11.10	5.30	0.89	12.60	6.29	0.94	14.20	7.48	
123	0.828	0.0013	86.5	5	0.67	6.24	3.47	0.75	9.13	5.65	0.81	11.10	7.48	0.85	12.60	8.89	0.90	14.20	10.60	
124	0.660	0.0010	100.0	5	0.73	6.24	3.01	0.81	9.13	4.88	0.88	11.10	6.44	0.92	12.60	7.65	0.97	14.20	9.09	
125	0.494	0.0008	100.0	5	0.73	6.24	2.25	0.81	9.13	3.66	0.88	11.10	4.83	0.92	12.60	5.73	0.97	14.20	6.81	
Total	40.16	0.0627	69.5%				149.25			245.47			325.56			388.25			464.32	

ATLAS 14 HEC-HMS HYDROLOGIC ROUTING SUMMARY for DA 200

TR-55 SCS Lag Time (hours)											Flow Summary						
Segment #1		Segment #2		Segment #3		Segment #4		Segment #5		Area	Tc	Cn	Q2	Q10	Q25	Q50	Q100
Sheet Flow		Shallow Concent		Shallow Concent		Channelized		Channelized		acres	hours	-	cfs	cfs	cfs	cfs	cfs
Mannings "n"	0.15	Unpaved	yes	Unpaved		Mannings "n"	0.1	Mannings "n"	0	1.02	5	79	5.2	7.85	9.58	11	12.42
Length (ft)	100	Length (ft)	1143	Length (ft)		Length (ft)	1504	Length (ft)	0	*Impervious Cvr =*		88.3%					
Slope (%)	10	Slope (%)	3.6	Slope (%)		Slope (%)	1.5	Slope (%)	0	*Pond Outflow =*			*3.40*	*4.61*	*5.38*	*6.07*	*6.91*
2-yr, 3 hr rainfall	4.06					Velocity (fps)	2.79	Velocity (fps)	0	*Peak Storage (ac-ft) =*			*0.04*	*0.062*	*0.081*	*0.097*	*0.112*
segment total	0.061	segment total	0.104	segment total		segment total	0.026	segment total	0	*Water Surface Elev (ft) =*			*756.7*	*757.7*	*758.5*	*759.3*	*760.4*
								time of conc.(hrs)	*0.191*	*SCS Lag Time (.6 x Tc)=*			0.1146	hours		6.9	minutes

DEVELOPED SUB AREA 200 DRAINAGE SUMMARY

DA No.	Acres	Sq. Mi.	% IC	Tc	C2	I2	Q2	C10	I10	Q10	C25	I25	Q25	C50	I50	Q50	C100	I100	Q100	Remarks
201	0.324	0.00051	81.1%	5	0.65	6.24	1.31	0.72	9.13	2.14	0.79	11.10	2.83	0.83	12.60	3.37	0.87	14.20	4.02	piped flow
202	0.266	0.00042	86.6%	5	0.67	6.24	1.11	0.75	9.13	1.82	0.81	11.10	2.41	0.85	12.60	2.86	0.90	14.20	3.41	piped flow
203	0.433	0.00068	95.6%	5	0.71	6.24	1.92	0.79	9.13	3.12	0.86	11.10	4.13	0.90	12.60	4.90	0.95	14.20	5.83	piped flow
Total	1.02	0.00160	88.3%				4.34			7.08			9.37			11.13			13.26	

ATLAS 14 HEC-HMS HYDROLOGIC ROUTING SUMMARY for DA 300

TR-55 SCS Lag Time (hours)											Flow Summary						
Segment #1		Segment #2		Segment #3		Segment #4		Segment #5		Area	Tc	Cn	Q2	Q10	Q25	Q50	Q100
Sheet Flow		Shallow Concent		Shallow Concent		Channelized		Channelized		acres	hours	-	cfs	cfs	cfs	cfs	cfs
Mannings "n"	0.15	Unpaved	yes	Unpaved		Mannings "n"	0.1	Mannings "n"	0	0.54	5	79	2.88	4.33	5.29	6.07	6.86
Length (ft)	100	Length (ft)	1143	Length (ft)		Length (ft)	1504	Length (ft)	0	*Impervious Cvr =*		87.6%					
Slope (%)	10	Slope (%)	3.6	Slope (%)		Slope (%)	1.5	Slope (%)	0	*Pond Outflow =*			*1.34*	*1.76*	*2.03*	*2.26*	*2.56*
2-yr, 3 hr rainfall	4.06					Velocity (fps)	2.79	Velocity (fps)	0	*Peak Storage (ac-ft) =*			*0.03*	*0.048*	*0.062*	*0.074*	*0.086*
segment total	0.061	segment total	0.104	segment total		segment total	0.026	segment total	0	*Water Surface Elev (ft) =*			*757.3*	*758.2*	*758.9*	*759.6*	*760.6*
								time of conc.(hrs)	*0.191*	*SCS Lag Time (.6 x Tc)=*			0.1146	hours		6.9	minutes

DEVELOPED SUB AREA 300 DRAINAGE SUMMARY

DA No.	Acres	Sq. Mi.	% IC	Tc	C2	I2	Q2	C10	I10	Q10	C25	I25	Q25	C50	I50	Q50	C100	I100	Q100	Remarks
301	0.540	0.00084	87.6%	5	0.68	6.24	2.28	0.75	9.13	3.71	0.82	11.10	4.91	0.86	12.60	5.84	0.91	14.20	6.95	piped flow
Total	0.54	0.00084	87.6%				2.28			3.71			4.91			5.84			6.95	

ATLAS 14 HEC-HMS HYDROLOGIC ROUTING SUMMARY for DA 400

TR-55 SCS Lag Time (hours)											Flow Summary						
Segment #1		Segment #2		Segment #3		Segment #4		Segment #5		Area	Tc	Cn	Q2	Q10	Q25	Q50	Q100
Sheet Flow		Shallow Concent		Shallow Concent		Channelized		Channelized		acres	hours	-	cfs	cfs	cfs	cfs	cfs
Mannings "n"	0.15	Unpaved	yes	Unpaved	0	Mannings "n"	0	Mannings "n"	0	0.62	5	79	3.29	4.89	5.95	6.81	7.68
Length (ft)	100	Length (ft)	899	Length (ft)	0	Length (ft)	0	Length (ft)	0	*Impervious Cvr =*		92.5%					
Slope (%)	10	Slope (%)	8	Slope (%)	0	Slope (%)	0	Slope (%)	0	*Pond Outflow =*			*3.10*	*4.16*	*4.82*	*5.37*	*5.91*
2-yr, 3 hr rainfall	4.06					Velocity (fps)	0	Velocity (fps)	0	*Peak Storage (ac-ft) =*			*0.0077*	*0.014*	*0.019*	*0.024*	*0.029*
segment total	0.061	segment total	0.055	segment total	0	segment total	0	segment total	0	*Water Surface Elev (ft) =*			*757.63*	*757.9*	*758.2*	*758.4*	*758.7*
								time of conc.(hrs)	*0.116*	*SCS Lag Time (.6 x Tc)=*			0.0696	hours		4.2	minutes

DEVELOPED SUB AREA 500 DRAINAGE SUMMARY

DA No.	Acres	Sq. Mi.	% IC	Tc	C2	I2	Q2	C10	I10	Q10	C25	I25	Q25	C50	I50	Q50	C100	I100	Q100	Remarks
501	0.040	0.00006	24.4%	5	0.40	6.24	0.10	#REF!	9.13	#REF!	0.51	11.10	0.23	0.54	12.60	0.27	0.58	14.20	0.33	piped flow
Total	0.04	0.00006	92.5%				0.10			#REF!			0.23			0.27			0.33	

DEVELOPED SUB AREA 600 DRAINAGE SUMMARY

DA No.	Acres	Sq. Mi.	% IC	Tc	C2	I2	Q2	C10	I10	Q10	C25	I25	Q25	C50	I50	Q50	C100	I100	Q100	Remarks
601	0.200	0.00031	0.0%	5	0.29	6.24	0.36	0.35	9.13	0.64	0.39	11.10	0.87	0.42	12.60	1.06	0.46	14.20	1.31	piped flow
602	0.180	0.00028	0.0%	5	0.29	6.24	0.33	0.35	9.13	0.58	0.39	11.10	0.78	0.42	12.60	0.95	0.46	14.20	1.18	piped flow
603	0.060	0.00009	0.0%	5	0.29	6.24	0.11	0.35	9.13	0.19	0.39	11.10	0.26	0.42	12.60	0.32	0.46	14.20	0.39	piped flow
Total	0.44	0.00069	0.0%				0.80			1.41			1.90			2.33			2.87	

DEVELOPED SUB AREA 700 DRAINAGE SUMMARY

DA No.	Acres	Sq. Mi.	% IC	Tc	C2	I2	Q2	C10	I10	Q10	C25	I25	Q25	C50	I50	Q50	C100	I100	Q100	Remarks
701	0.330	0.00052	0.0%	5	0.29	6.24	0.60	#REF!	9.13	#REF!	0.39	11.10	1.43	0.42	12.60	1.75	0.46	14.20	2.16	piped flow
Total	0.33	0.00052	0.0%				0.60			#REF!			1.43			1.75			2.16	

DEVELOPED SUB AREA 800 DRAINAGE SUMMARY

DA No.	Acres	Sq. Mi.	% IC	Tc	C2	I2	Q2	C10	I10	Q10	C25	I25	Q25	C50	I50	Q50	C100	I100	Q100	Remarks
801	0.744	0.00116	0.0%	5	0.29	6.24	1.35	0.35	9.13	2.38	0.39	11.10	3.22	0.42	12.60	3.94	0.46	14.20	4.86	piped flow
Total	0.74	0.00116	0.0%				1.35			2.38			3.22			3.94			4.86	

DEVELOPED SUB AREA 900 DRAINAGE SUMMARY

DA No.	Acres	Sq. Mi.	% IC	Tc	C2	I2	Q2	C10	I10	Q10	C25	I25	Q25	C50	I50	Q50	C100	I100	Q100	Remarks
901	0.783	0.00122	0.0%	5	0.29	6.24	1.42	0.35	9.13	2.50	0.39	11.10	3.39	0.42	12.60	4.14	0.46	14.20	5.11	piped flow
Total	0.78	0.00122	0.0%				1.42			2.50			3.39			4.14			5.11	

DEVELOPED SUB AREA 1000 DRAINAGE SUMMARY

DA No.	Acres	Sq. Mi.	% IC	Tc	C2	I2	Q2	C10	I10	Q10	C25	I25	Q25	C50	I50	Q50	C100	I100	Q100	Remarks
1001	0.584	0.00091	1.3%	5	0.30	6.24	1.08	0.36	9.13	1.90	0.40	11.10	2.57	0.43	12.60	3.14	0.47	14.20	3.87	piped flow
Total	0.58	0.00091	1.3%				1.08			1.90			2.57			3.14			3.87	

DEVELOPED SUB AREA OFF 1 DRAINAGE SUMMARY

DA No.	Acres	Sq. Mi.	% IC	Tc	C2	I2	Q2	C10	I10	Q10	C25	I25	Q25	C50	I50	Q50	C100	I100	Q100	Remarks
1A	0.639	0.00100	51.4%	5	0.52	6.24	2.06	0.59	9.13	3.42	0.64	11.10	4.55	0.68	12.60	5.45	0.72	14.20	6.55	piped flow
1B	0.587	0.00092	72.3%	5	0.61	6.24	2.23	0.68	9.13	3.66	0.74	11.10	4.85	0.78	12.60	5.78	0.83	14.20	6.90	piped flow
1C	1.082	0.00169	53.6%	5	0.53	6.24	3.55	0.60	9.13	5.89	0.65	11.10	7.84	0.69	12.60	9.38	0.73	14.20	11.27	piped flow
1D	1.079	0.00169	55.9%	5	0.54	6.24	3.61	0.61	9.13	5.98	0.66	11.10	7.95	0.70	12.60	9.51	0.75	14.20	11.41	piped flow
1E	28.096	0.04390	0.0%	10	0.29	6.24	50.87	0.35	7.30	71.82	0.39	8.84	96.91	0.42	10.10	119.23	0.46	11.40	147.39	piped flow
1F	0.187	0.00029	95.5%	5	0.71	6.24	0.83	0.79	9.13	1.34	0.86	11.10	1.78	0.90	12.60	2.11	0.95	14.20	2.51	piped flow
1G	0.165	0.00026	100.0%	5	0.73	6.24	0.75	0.81	9.13	1.22	0.88	11.10	1.62	0.92	12.60	1.92	0.97	14.20	2.28	piped flow
1H	0.312	0.00049	90.3%	5	0.69	6.24	1.34	0.77	9.13	2.18	0.83	11.10	2.88	0.87	12.60	3.42	0.92	14.20	4.07	piped flow
1i	0.150	0.00023	86.6%	5	0.67	6.24	0.63	0.75	9.13	1.02	0.81	11.10	1.36	0.85	12.60	1.61	0.90	14.20	1.92	piped flow
1J	0.250	0.00039	73.3%	5	0.61	6.24	0.96	0.69	9.13	1.57	0.75	11.10	2.08	0.79	12.60	2.48	0.83	14.20	2.96	piped flow
1K	0.210	0.00033	53.8%	5	0.53	6.24	0.69	0.60	9.13	1.15	0.65	11.10	1.52	0.69	12.60	1.82	0.73	14.20	2.19	piped flow
1L	0.170	0.00027	64.9%	5	0.58	6.24	0.61	0.65	9.13	1.01	0.71	11.10	1.34	0.74	12.60	1.59	0.79	14.20	1.91	piped flow
Total	32.93	0.05145	11.0%				68.11			100.25			134.65			164.30			201.36	

DEVELOPED SUB AREA OFF 2 DRAINAGE SUMMARY

DA No.	Acres	Sq. Mi.	% IC	Tc	C2	I2	Q2	C10	I10	Q10	C25	I25	Q25	C50	I50	Q50	C100	I100	Q100	Remarks
OFF 2A	0.18	0.00028	81.9%	5	0.65	6.24	0.73	0.73	9.13	1.19	0.79	11.10	1.58	0.83	12.60	1.88	0.88	14.20	2.24	piped flow
OFF 2B	0.15	0.00023	82.4%	5	0.65	6.24	0.61	0.73	9.13	1.00	0.79	11.10	1.32	0.83	12.60	1.57	0.88	14.20	1.87	piped flow
OFF 2C	0.16	0.00025	80.5%	5	0.64	6.24	0.64	0.72	9.13	1.05	0.78	11.10	1.39	0.82	12.60	1.66	0.87	14.20	1.98	piped flow
OFF 2D	0.09	0.00014	81.2%	5	0.65	6.24	0.37	0.72	9.13	0.60	0.79	11.10	0.79	0.83	12.60	0.94	0.87	14.20	1.13	piped flow
Total	0.58	0.00091	81.5%				2.35			3.84			5.09			6.06			7.22	

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11.04.2022

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STATE OF TEXAS
TERRY R. HAGOOD
52960
REGISTERED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY TERRY R. HAGOOD, P.E. 52960
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DATE SIGNED: 4/30/2023
ISSUED FOR: AGENCY REVIEW

Eagles Nest 3
Lot KE - Bldgs. 6-9

3259 Eagles Nest St.
Round Rock, Texas,
78665

Issue

1	09.23.2022	50% CD - Pricing
2	11.04.2022	95% CD
3	12.05.2022	CORR/TCEQ
4	4.30.2023	TCEQ UPDATE

Project Number: 22-019g
Drawn By: JSR
Checked By: RB

DRAINAGE AREA CALCULATIONS

PDA CALCULATIONS

13-018.2 CALCS, 4/30/2023 1:22:09 PM, TerryH

Detention Pond 100 Depth v. Storage v. Outflow									
Elevation	Depth	Acc. Depth	Area	Area	Volume	Acc. Volume	Acc. Volume	Outflow	Remarks
feet	feet	feet	sq. feet	acres	cubic feet	cubic feet	ac-ft		
751.5	**0**	**0**	**0.00**	**0.00**	**0.00**	**0.00**	0.00	0.00	
751.7	0.2	0.2	11,413.32	0.26	2282.66	1141.33	0.03		
751.9	0.2	0.4	22,826.64	0.52	4565.33	4565.33	0.10		
752.1	0.2	0.6	34,239.96	0.79	6847.99	10271.99	0.24		
752.3	0.2	0.8	45,653.28	1.05	9130.66	18261.31	0.42		
752.5	0.2	1	57,066.60	1.31	11413.32	28533.30	0.66		
752.7	0.2	1.2	61,573.92	1.41	12314.78	40397.35	0.93		
752.9	0.2	1.4	66,081.24	1.52	13216.25	53162.87	1.22		
753.1	0.2	1.6	70,588.56	1.62	14117.71	66829.85	1.53		
753.3	0.2	1.8	75,095.88	1.72	15019.18	81398.29	1.87		
753.5	0.2	2	79,603.20	1.83	15920.64	96868.20	2.22		
753.7	0.2	2.2	83,197.80	1.91	16639.56	113148.30	2.60		
753.9	0.2	2.4	86,792.40	1.99	17358.48	130147.32	2.99		
754.1	0.2	2.6	90,387.00	2.08	18077.40	147865.26	3.39		
754.3	0.2	2.8	93,981.60	2.16	18796.32	166302.12	3.82		
754.5	0.2	3	97,576.20	2.24	19515.24	185457.90	4.26		
754.7	0.2	3.2	98,423.84	2.26	19684.77	205057.90	4.71		
754.9	0.2	3.4	99,271.48	2.28	19854.30	224827.44	5.16		
755.1	0.2	3.6	100,119.12	2.30	20023.82	244766.50	5.62		
755.3	0.2	3.8	100,966.76	2.32	20193.35	264875.08	6.08		
755.5	0.2	4	101,814.40	2.34	20362.88	285153.20	6.55		
755.7	**0.2**	**4.2**	**102,893.52**	**2.36**	**20578.70**	**305623.99**	**7.02**	**17.60**	**2 year**
755.9	0.2	4.4	103,972.64	2.39	20794.53	326310.61	7.49		
756.1	0.2	4.6	105,051.76	2.41	21010.35	347213.05	7.97		
756.3	0.2	4.8	106,130.88	2.44	21226.18	368331.31	8.46		
756.5	0.2	5	107,210.00	2.46	21442.00	389665.40	8.95		
756.7	0.2	5.2	108,387.12	2.49	21677.42	411225.11	9.44		
756.9	0.2	5.4	109,564.24	2.52	21912.85	433020.25	9.94		
757.1	0.2	5.6	110,741.36	2.54	22148.27	455050.81	10.45		
757.3	**0.2**	**5.8**	**111,918.48**	**2.57**	**22383.70**	**477316.79**	**10.96**	**50.90**	**10 year**
757.5	0.2	6	113,095.60	2.60	22619.12	499818.20	11.47		
757.7	0.2	6.2	114,265.18	2.62	22853.04	522554.28	12.00		
757.9	0.2	6.4	115,434.76	2.65	23086.95	545524.27	12.52		
758.1	**0.2**	**6.6**	**116,604.34**	**2.68**	**23320.87**	**568728.18**	**13.06**	**77.10**	**25 year**
758.3	0.2	6.8	117,773.92	2.70	23554.78	592166.01	13.59		
758.5	0.20	7.00	118943.50	2.73	23788.70	615837.75	14.14		
758.7	0.2	7.2	120,350.82	2.76	24070.16	639767.18	14.69		
758.9	**0.2**	**7.4**	**121,758.14**	**2.80**	**24351.63**	**663978.08**	**15.24**	**98.80**	**50 year**
759.1	0.2	7.6	123,165.46	2.83	24633.09	688470.44	15.81		
759.3	0.2	7.8	124,572.78	2.86	24914.56	713244.26	16.37		
759.5	0.2	8	125,980.10	2.89	25196.02	738299.55	16.95		
759.7	**0.2**	**8.2**	**127,298.12**	**2.92**	**25459.62**	**763627.37**	**17.53**	**123.20**	**100 year**
759.9	0.2	8.4	128,616.14	2.95	25723.23	789218.80	18.12		
760.1	0.2	8.6	129,934.16	2.98	25986.83	815073.83	18.71		
760.3	0.2	8.8	131,252.18	3.01	26250.44	841192.46	19.31		
760.5	0.2	9	132570.2	3.04	26514.04	867574.70	19.92		

Detention Pond 300 Depth v. Storage v. Outflow														
Elevation	Depth	Acc. Depth	Area	Area	Single Chamber	Single End Cap	Incremental Chambers	Incremental End Cap	Incremental Stone	Ch, EC and Stone	Cumulative System	Acc. Volume	Outflow	Remarks
feet	feet	feet	sq. feet	acres	(cubic feet)	(cubic feet)	(cubic feet)	(cubic feet)	(cubic feet)	(cubic feet)	(cubic feet)	(ac-ft)	(cfs)	
755.667	0.000	0.000	496.00	0.0114	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000000	0.000	
755.750	0.083	0.083	496.00	0.0114	0.00	0.00	0.00	0.00	41.33	41.33	41.33	0.0009489		
755.833	0.083	0.167	496.00	0.0114	0.00	0.00	0.00	0.00	41.33	41.33	82.67	0.0018978		
755.917	0.083	0.250	496.00	0.0114	0.00	0.00	0.00	0.00	41.33	41.33	124.00	0.0028466		
756.000	0.083	0.333	496.00	0.0114	0.00	0.00	0.00	0.00	41.33	41.33	165.33	0.0037955		
756.083	0.083	0.417	496.00	0.0114	0.00	0.00	0.00	0.00	41.33	41.33	206.67	0.0047444		
756.167	0.083	0.500	496.00	0.0114	0.00	0.00	0.00	0.00	41.33	41.33	248.00	0.0056933		
756.250	0.083	0.583	496.00	0.0114	0.00	0.00	0.00	0.00	41.33	41.33	289.33	0.0066422		
756.333	0.083	0.667	496.00	0.0114	0.00	0.00	0.00	0.00	41.33	41.33	330.67	0.0075911		
756.417	0.083	0.750	496.00	0.0114	0.00	0.00	0.00	0.00	41.33	41.33	372.00	0.0085399		
756.500	0.083	0.833	1001.20	0.0230	3.51	0.59	66.60	3.57	13.27	83.43	455.43	0.0104553		
756.583	0.083	0.917	995.87	0.0229	3.48	0.56	66.10	3.33	13.56	82.99	538.42	0.0123605		
756.667	0.083	1.000	992.75	0.0228	3.46	0.55	65.70	3.30	13.74	82.73	621.15	0.0142597		
756.750	0.083	1.083	989.65	0.0227	3.44	0.54	65.30	3.26	13.91	82.47	703.62	0.0161529		
756.833	0.083	1.167	986.29	0.0226	3.41	0.54	64.88	3.22	14.10	82.19	785.81	0.0180398		
756.917	0.083	1.250	982.97	0.0226	3.39	0.53	64.46	3.18	14.28	81.91	867.73	0.0199203		
757.000	0.083	1.333	979.39	0.0225	3.37	0.52	64.00	3.13	14.48	81.62	949.34	0.0217939		
757.083	0.083	1.417	975.70	0.0224	3.34	0.51	63.54	3.09	14.68	81.31	1030.65	0.0236605		
757.167	0.083	1.500	971.77	0.0223	3.32	0.51	63.04	3.04	14.90	80.98	1111.63	0.0255196		
757.250	0.083	1.583	967.62	0.0222	3.29	0.50	62.51	2.99	15.13	80.63	1192.27	0.0273707		
757.333	**0.083**	**1.667**	**963.29**	**0.0221**	**3.26**	**0.49**	**61.97**	**2.94**	**15.37**	**80.27**	**1272.54**	**0.0292135**	**1.340**	**2 year**
757.417	0.083	1.750	958.76	0.0220	3.23	0.48	61.39	2.88	15.62	79.90	1352.44	0.0310477		
757.500	0.083	1.833	954.02	0.0219	3.20	0.47	60.79	2.82	15.89	79.50	1431.94	0.0328728		
757.583	0.083	1.917	948.97	0.0218	3.17	0.46	60.15	2.77	16.17	79.08	1511.02	0.0346883		
757.667	0.083	2.000	943.74	0.0217	3.13	0.45	59.48	2.70	16.46	78.64	1589.67	0.0364937		
757.750	0.083	2.083	938.32	0.0215	3.09	0.44	58.79	2.64	16.76	78.19	1667.86	0.0382888		
757.833	0.083	2.167	932.25	0.0214	3.05	0.43	58.01	2.58	17.10	77.69	1745.55	0.0400722		
757.917	0.083	2.250	926.19	0.0213	3.01	0.42	57.24	2.51	17.43	77.18	1822.73	0.0418441		
758.000	0.083	2.333	919.89	0.0211	2.97	0.41	56.43	2.45	17.78	76.66	1899.39	0.0436039		
758.083	0.083	2.417	913.13	0.0210	2.92	0.40	55.56	2.38	18.16	76.09	1975.48	0.0453508		
758.167	0.083	2.500	905.96	0.0208	2.88	0.38	54.63	2.31	18.56	75.50	2050.98	0.0470840		
758.250	**0.083**	**2.583**	**898.50**	**0.0206**	**2.82**	**0.37**	**53.67**	**2.23**	**18.97**	**74.87**	**2125.85**	**0.0488028**	**1.760**	**10 year**
758.333	0.083	2.667	890.66	0.0204	2.77	0.36	52.65	2.16	19.41	74.22	2200.07	0.0505067		
758.417	0.083	2.750	882.42	0.0203	2.72	0.35	51.59	2.08	19.87	73.53	2273.61	0.0521949		
758.500	0.083	2.833	873.80	0.0201	2.66	0.33	50.47	2.01	20.34	72.82	2346.43	0.0538665		
758.583	0.083	2.917	864.70	0.0199	2.59	0.32	49.28	1.93	20.85	72.06	2418.48	0.0555207		
758.667	0.083	3.000	855.15	0.0196	2.53	0.31	48.04	1.85	21.38	71.26	2489.75	0.0571567		
758.750	0.083	3.083	845.10	0.0194	2.46	0.29	46.72	1.76	21.94	70.43	2560.17	0.0587734		
758.833	0.083	3.167	834.33	0.0192	2.38	0.28	45.31	1.68	22.54	69.53	2629.70	0.0603696		
758.917	**0.083**	**3.250**	**823.04**	**0.0189**	**2.31**	**0.27**	**43.83**	**1.59**	**23.16**	**68.59**	**2698.29**	**0.0619441**	**2.030**	**25 year**
759.000	0.083	3.333	811.10	0.0186	2.22	0.25	42.26	1.50	23.83	67.59	2765.88	0.0634958		
759.083	0.083	3.417	798.18	0.0183	2.13	0.23	40.56	1.41	24.55	66.51	2832.39	0.0650228		
759.167	0.083	3.500	784.61	0.0180	2.04	0.22	38.78	1.31	25.30	65.38	2897.78	0.0665238		
759.250	0.083	3.583	769.75	0.0177	1.94	0.20	36.82	1.20	26.13	64.15	2961.92	0.0679964		
759.333	0.083	3.667	753.99	0.0173	1.83	0.18	34.74	1.09	27.00	62.83	3024.75	0.0694388		
759.417	0.083	3.750	736.57	0.0169	1.71	0.16	32.44	0.98	27.97	61.38	3086.14	0.0708479		
759.500	0.083	3.833	717.44	0.0165	1.57	0.14	29.89	0.87	29.03	59.79	3145.92	0.0722204		
759.583	0.083	3.917	696.02	0.0160	1.42	0.13	27.02	0.76	30.22	58.00	3203.92	0.0735520		
759.667	**0.083**	**4.000**	**671.57**	**0.0154**	**1.25**	**0.11**	**23.74**	**0.64**	**31.58**	**55.96**	**3259.89**	**0.0748367**	**2.260**	**50 year**
759.750	0.083	4.083	640.48	0.0147	1.03	0.09	19.54	0.53	33.31	53.37	3313.26	0.0760620		
759.833	0.083	4.167	592.93	0.0136	0.69	0.07	13.06	0.41	35.95	49.41	3362.67	0.0771963		
759.917	0.083	4.250	553.45	0.0127	0.40	0.05	7.67	0.31	38.14	46.12	3408.79	0.0782551		
760.000	0.083	4.333	537.84	0.0123	0.29	0.04	5.59	0.23	39.01	44.82	3453.61	0.0792840		
760.083	0.083	4.417	523.59	0.0120	0.19	0.02	3.69	0.14	39.80	43.63	3497.24	0.0802857		
760.167	0.083	4.500	503.95	0.0116	0.06	0.00	1.10	0.00	40.89	42.00	3539.24	0.0812498		
760.250	0.083	4.583	496.00	0.0114	0.00	0.00	0.00	0.00	41.33	41.33	3580.57	0.0821986		
760.333	0.083	4.667	496.00	0.0114	0.00	0.00	0.00	0.00	41.33	41.33	3621.91	0.0831475		
760.417	0.083	4.750	496.00	0.0114	0.00	0.00	0.00	0.00	41.33	41.33	3663.24	0.0840964		
760.500	0.083	4.833	496.00	0.0114	0.00	0.00	0.00	0.00	41.33	41.33	3704.57	0.0850453		
760.583	0.083	4.917	496.00	0.0114	0.00	0.00	0.00	0.00	41.33	41.33	3745.91	0.0859942		
760.667	**0.083**	**5.000**	**496.00**	**0.0114**	**0.00**	**0.00**	**0.00**	**0.00**	**41.33**	**41.33**	**3787.24**	**0.0869431**	**2.560**	**100 year**
760.750	0.083	5.083	496.00	0.0114	0.00	0.00	0.00	0.00	41.33	41.33	3828.57	0.0878919		
760.833	0.083	5.167	496.00	0.0114	0.00	0.00	0.00	0.00	41.33	41.33	3869.91	0.0888408		
760.917	0.083	5.250	496.00	0.0114	0.00	0.00	0.00	0.00	41.33	41.33	3911.24	0.0897897		
761.000	0.083	5.333	496.00	0.0114	0.00	0.00	0.00	0.00	41.33	41.33	3952.57	0.0907386		
761.083	0.083	5.417	496.00	0.0114	0.00	0.00	0.00	0.00	41.33	41.33	3993.91	0.0916875		
761.167	0.083	5.500	496.00	0.0114	0.00	0.00	0.00	0.00	41.33	41.33	4035.24	0.0926364		

Detention Pond 200 Depth v. Storage v. Outflow															
Elevation	Depth	Acc. Depth	Area	Area	Single	Single End	Chambers	End Cap	Stone	Ch, EC and	System	Acc. Volume	Outflow	Remarks
feet	feet	feet	sq. feet	acres	(cubic feet)	(cubic feet)	(cubic feet)	(cubic feet)	(cubic feet)	(cubic feet)	(cubic feet)	(ac-ft)	(cfs)	
755.000	0.000	0.000	496.00	0.0114	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000000		
755.083	0.083	0.083	496.00	0.0114	0.00	0.00	0.00	0.00	50.23	50.23	50.23	0.0011532		
755.167	0.083	0.167	496.00	0.0114	0.00	0.00	0.00	0.00	50.23	50.23	100.47	0.0023064		
755.250	0.083	0.250	496.00	0.0114	0.00	0.00	0.00	0.00	50.23	50.23	150.70	0.0034596		
755.333	0.083	0.333	496.00	0.0114	0.00	0.00	0.00	0.00	50.23	50.23	200.93	0.0046128		
755.417	0.083	0.417	496.00	0.0114	0.00	0.00	0.00	0.00	50.23	50.23	251.17	0.0057660		
755.500	0.083	0.500	496.00	0.0114	0.00	0.00	0.00	0.00	50.23	50.23	301.40	0.0069192		
755.583	0.083	0.583	496.00	0.0114	0.00	0.00	0.00	0.00	50.23	50.23	351.63	0.0080724		
755.667	0.083	0.667	496.00	0.0114	0.00	0.00	0.00	0.00	50.23	50.23	401.87	0.0092256		
755.750	0.083	0.750	496.00	0.0114	0.00	0.00	0.00	0.00	50.23	50.23	452.10	0.0103788		
755.833	0.083	0.833	1001.20	0.0230	3.51	0.59	84.12	3.57	15.16	102.85	554.95	0.0127399		
755.917	0.083	0.917	995.87	0.0229	3.48	0.56	83.49	3.33	15.51	102.33	657.27	0.0150889		
756.000	0.083	1.000	992.75	0.0228	3.46	0.55	82.99	3.30	15.72	102.00	759.28	0.0174306		
756.083	0.083	1.083	989.65	0.0227	3.44	0.54	82.49	3.26	15.93	101.68	860.96	0.0197649		
756.167	0.083	1.167	986.29	0.0226	3.41	0.54	81.95	3.22	16.17	101.33	962.29	0.0220912		
756.250	0.083	1.250	982.97	0.0226	3.39	0.53	81.42	3.18	16.39	100.99	1063.28	0.0244096		
756.333	0.083	1.333	979.39	0.0225	3.37	0.52	80.85	3.13	16.64	100.62	1163.91	0.0267196		
756.417	0.083	1.417	975.70	0.0224	3.34	0.51	80.26	3.09	16.89	100.24	1264.15	0.0290208		
756.500	0.083	1.500	971.77	0.0223	3.32	0.51	79.63	3.04	17.17	99.84	1363.98	0.0313127		
756.583	0.083	1.583	967.62	0.0222	3.29	0.50	78.97	2.99	17.45	99.41	1463.39	0.0335947		
756.667	0.083	1.667	963.29	0.0221	3.26	0.49	78.27	2.94	17.75	98.96	1562.35	0.0358665		
756.750	**0.083**	**1.750**	**958.76**	**0.0220**	**3.23**	**0.48**	**77.55**	**2.88**	**18.06**	**98.49**	**1660.84**	**0.0381275**	**3.400**	**2 year**
756.833	0.083	1.833	954.02	0.0219	3.20	0.47	76.79	2.82	18.39	98.00	1758.84	0.0403773		
756.917	0.083	1.917	948.97	0.0218	3.17	0.46	75.98	2.77	18.74	97.48	1856.31	0.0426151		
757.000	0.083	2.000	943.74	0.0217	3.13	0.45	75.13	2.70	19.10	96.94	1953.25	0.0448404		
757.083	0.083	2.083	938.32	0.0215	3.09	0.44	74.26	2.64	19.47	96.38	2049.63	0.0470529		
757.167	0.083	2.167	932.25	0.0214	3.05	0.43	73.28	2.58	19.89	95.75	2145.37	0.0492510		
757.250	0.083	2.250	926.19	0.0213	3.01	0.42	72.30	2.51	20.31	95.12	2240.49	0.0514346		
757.333	0.083	2.333	919.89	0.0211	2.97	0.41	71.28	2.45	20.74	94.47	2334.96	0.0536033		
757.417	0.083	2.417	913.13	0.0210	2.92	0.40	70.18	2.38	21.21	93.77	2428.73	0.0557559		
757.500	0.083	2.500	905.96	0.0208	2.88	0.38	69.01	2.31	21.71	93.02	2521.75	0.0578914		
757.583	0.083	2.583	898.50	0.0206	2.82	0.37	67.79	2.23	22.22	92.25	2614.00	0.0600091		
757.667	0.083	2.667	890.66	0.0204	2.77	0.36	66.51	2.16	22.76	91.44	2705.43	0.0621082		
757.750	**0.083**	**2.750**	**882.42**	**0.0203**	**2.72**	**0.35**	**65.16**	**2.08**	**23.34**	**90.58**	**2796.01**	**0.0641877**	**4.610**	**10 year**
757.833	0.083	2.833	873.80	0.0201	2.66	0.33	63.75	2.01	23.93	89.68	2885.70	0.0662465		
757.917	0.083	2.917	864.70	0.0199	2.59	0.32	62.25	1.93	24.56	88.74	2974.44	0.0682837		
758.000	0.083	3.000	855.15	0.0196	2.53	0.31	60.68	1.85	25.22	87.75	3062.19	0.0702981		
758.083	0.083	3.083	845.10	0.0194	2.46	0.29	59.02	1.76	25.92	86.70	3148.89	0.0722885		
758.167	0.083	3.167	834.33	0.0192	2.38	0.28	57.23	1.68	26.67	85.58	3234.47	0.0742532		
758.250	0.083	3.250	823.04	0.0189	2.31	0.27	55.36	1.59	27.45	84.41	3318.88	0.0761909		
758.333	0.083	3.333	811.10	0.0186	2.22	0.25	53.38	1.50	28.28	83.16	3402.04	0.0781001		
758.417	0.083	3.417	798.18	0.0183	2.13	0.23	51.23	1.41	29.18	81.82	3483.86	0.0799784		
758.500	**0.083**	**3.500**	**784.61**	**0.0180**	**2.04**	**0.22**	**48.98**	**1.31**	**30.12**	**80.41**	**3564.27**	**0.0818243**	**5.380**	**25 year**
758.583	0.083	3.583	769.75	0.0177	1.94	0.20	46.51	1.20	31.15	78.86	3643.13	0.0836347		
758.667	0.083	3.667	753.99	0.0173	1.83	0.18	43.88	1.09	32.24	77.22	3720.34	0.0854073		
758.750	0.083	3.750	736.57	0.0169	1.71	0.16	40.97	0.98	33.45	75.40	3795.75	0.0871383		
758.833	0.083	3.833	717.44	0.0165	1.57	0.14	37.76	0.87	34.78	73.41	3869.15	0.0888235		
758.917	0.083	3.917	696.02	0.0160	1.42	0.13	34.13	0.76	36.28	71.17	3940.32	0.0904573		
759.000	0.083	4.000	671.57	0.0154	1.25	0.11	29.99	0.64	37.98	68.61	4008.93	0.0920325		
759.083	0.083	4.083	640.48	0.0147	1.03	0.09	24.68	0.53	40.15	65.36	4074.29	0.0935329		
759.167	0.083	4.167	592.93	0.0136	0.69	0.07	16.49	0.41	43.47	60.37	4134.66	0.0949188		
759.250	0.083	4.250	553.45	0.0127	0.40	0.05	9.69	0.31	46.23	56.23	4190.90	0.0962097		
759.333	**0.083**	**4.333**	**537.84**	**0.0123**	**0.29**	**0.04**	**7.06**	**0.23**	**47.32**	**54.60**	**4245.50**	**0.0974632**	**6.070**	**50 year**
759.417	0.083	4.417	523.59	0.0120	0.19	0.02	4.66	0.14	48.31	53.11	4298.61	0.0986825		
759.500	0.083	4.500	503.95	0.0116	0.06	0.00	1.39	0.00	49.68	51.07	4349.68	0.0998549		
759.583	0.083	4.583	496.00	0.0114	0.00	0.00	0.00	0.00	50.23	50.23	4399.91	0.1010081		
759.667	0.083	4.667	496.00	0.0114	0.00	0.00	0.00	0.00	50.23	50.23	4450.15	0.1021613		
759.750	0.083	4.750	496.00	0.0114	0.00	0.00	0.00	0.00	50.23	50.23	4500.38	0.1033145		
759.833	0.083	4.833	496.00	0.0114	0.00	0.00	0.00	0.00	50.23	50.23	4550.61	0.1044677		
759.917	0.083	4.917	496.00	0.0114	0.00	0.00	0.00	0.00	50.23	50.23	4600.85	0.1056209		
760.000	0.083	5.000	496.00	0.0114	0.00	0.00	0.00	0.00	50.23	50.23	4651.08	0.1067741		
760.083	0.083	5.083	496.00	0.0114	0.00	0.00	0.00	0.00	50.23	50.23	4701.31	0.1079273		
760.167	0.083	5.167	496.00	0.0114	0.00	0.00	0.00	0.00	50.23	50.23	4751.55	0.1090805		
760.250	0.083	5.250	496.00	0.0114	0.00	0.00	0.00	0.00	50.23	50.23	4801.78	0.1102337		
760.333	0.083	5.333	496.00	0.0114	0.00	0.00	0.00	0.00	50.23	50.23	4852.01	0.1113869		
760.417	**0.083**	**5.417**	**496.00**	**0.0114**	**0.00**	**0.00**	**0.00**	**0.00**	**50.23**	**50.23**	**4902.25**	**0.1125401**	**123.200**	**100 year**
760.500	0.083	5.500	496.00	0.0114	0.00	0.00	0.00	0.00	50.23	50.23	4952.48	0.1136933		

Detention Pond 400 Depth v. Storage v. Outflow														
5	Depth	Acc. Depth	Area	Area	Incremental Single Chamber	Incremental Single End Cap	Incremental Chambers	Incremental End Cap	Incremental Stone	Incremental Ch, EC and Stone	Cumulative System	Acc. Volume	Outflow	Remarks
feet	feet	feet	sq. feet	acres	(cubic feet)	(cubic feet)	(cubic feet)	(cubic feet)	(cubic feet)	(cubic feet)	(cubic feet)	(ac-ft)	(cfs)	
756.960	0.000	0.000	755.710	500.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000000		
757.043	0.083	0.083	755.793	500.800	0.00	0.00	0.00	0.00	41.73	41.73	41.73	0.0009581		
757.127	0.083	0.167	755.877	500.800	0.00	0.00	0.00	0.00	41.73	41.73	83.47	0.0019161		
757.210	0.083	0.250	755.960	500.800	0.00	0.00	0.00	0.00	41.73	41.73	125.20	0.0028742		
757.293	0.083	0.333	756.043	500.800	0.00	0.00	0.00	0.00	41.73	41.73	166.93	0.0038323		
757.377	0.083	0.417	756.127	500.800	0.00	0.00	0.00	0.00	41.73	41.73	208.67	0.0047903		
757.460	0.083	0.500	756.210	500.800	0.00	0.00	0.00	0.00	41.73	41.73	250.40	0.0057484		
757.543	0.083	0.583	756.293	500.800	0.00	0.00	0.00	0.00	41.73	41.73	292.13	0.0067065		
757.627	0.083	0.667	756.377	500.800	0.00	0.00	0.00	0.00	41.73	41.73	333.87	0.0076645		
757.710	**0.083**	**0.750**	**756.460**	**500.800**	**0.00**	**0.00**	**0.00**	**0.00**	**41.73**	**41.73**	**375.60**	**0.0086226**	**3.1000**	**2 year**
757.793	0.083	0.833	756.543	980.761	3.51	0.59	63.09	3.57	15.07	81.73	457.33	0.0104989		
757.877	0.083	0.917	756.627	975.624	3.48	0.56	62.62	3.33	15.35	81.30	538.63	0.0123653		
757.960	**0.083**	**1.000**	**756.710**	**972.653**	**3.46**	**0.55**	**62.24**	**3.30**	**15.52**	**81.05**	**619.69**	**0.0142260**	**4.1600**	**10 year**
758.043	0.083	1.083	756.793	969.702	3.44	0.54	61.87	3.26	15.68	80.81	700.50	0.0160812		
758.127	0.083	1.167	756.877	966.504	3.41	0.54	61.46	3.22	15.86	80.54	781.04	0.0179301		
758.210	0.083	1.250	756.960	963.346	3.39	0.53	61.07	3.18	16.04	80.28	861.32	0.0197731		
758.293	**0.083**	**1.333**	**757.043**	**959.932**	**3.37**	**0.52**	**60.64**	**3.13**	**16.23**	**79.99**	**941.31**	**0.0216095**	**4.8200**	**25 year**
758.377	0.083	1.417	757.127	956.425	3.34	0.51	60.19	3.09	16.42	79.70	1021.01	0.0234392		
758.460	**0.083**	**1.500**	**757.210**	**952.685**	**3.32**	**0.51**	**59.72**	**3.04**	**16.63**	**79.39**	**1100.40**	**0.0252618**	**5.3700**	**50 year**
758.543	0.083	1.583	757.293	948.730	3.29	0.50	59.22	2.99	16.85	79.06	1179.46	0.0270768		
758.627	0.083	1.667	757.377	944.612	3.26	0.49	58.71	2.94	17.08	78.72	1258.18	0.0288839		
758.710	**0.083**	**1.750**	**757.460**	**940.293**	**3.23**	**0.48**	**58.16**	**2.88**	**17.32**	**78.36**	**1336.54**	**0.0306827**	**100.0000**	**100 year**
758.793	0.083	1.833	757.543	935.781	3.20	0.47	57.59	2.82	17.57	77.98	1414.52	0.0324729		
758.877	0.083	1.917	757.627	930.979	3.17	0.46	56.98	2.77	17.83	77.58	1492.10	0.0342540		
758.960	0.083	2.000	757.710	925.995	3.13	0.45	56.35	2.70	18.11	77.17	1569.27	0.0360254		
759.043	0.083	2.083	757.793	920.844	3.09	0.44	55.70	2.64	18.40	76.74	1646.01	0.0377871		
759.127	0.083	2.167	757.877	915.063	3.05	0.43	54.96	2.58	18.72	76.26	1722.26	0.0395377		
759.210	0.083	2.250	757.960	909.301	3.01	0.42	54.22	2.51	19.04	75.78	1798.04	0.0412772		
759.293	0.083	2.333	758.043	903.305	2.97	0.41	53.46	2.45	19.37	75.28	1873.31	0.0430053		
759.377	0.083	2.417	758.127	896.878	2.92	0.40	52.63	2.38	19.73	74.74	1948.05	0.0447211		
759.460	0.083	2.500	758.210	890.062	2.88	0.38	51.76	2.31	20.11	74.17	2022.22	0.0464238		
759.543	0.083	2.583	758.293	882.958	2.82	0.37	50.84	2.23	20.50	73.58	2095.80	0.0481130		
759.627	0.083	2.667	758.377	875.511	2.77	0.36	49.88	2.16	20.92	72.96	2168.76	0.0497879		
759.710	0.083	2.750	758.460	867.668	2.72	0.35	48.87	2.08	21.35	72.31	2241.07	0.0514478		
759.793	0.083	2.833	758.543	859.473	2.66	0.33	47.81	2.01	21.81	71.62	2312.69	0.0530921		
759.877	0.083	2.917	758.627	850.824	2.59	0.32	46.69	1.93	22.29	70.90	2383.59	0.0547198		
759.960	0.083	3.000	758.710	841.751	2.53	0.31	45.51	1.85	22.79	70.15	2453.74	0.0563301		
760.043	0.083	3.083	758.793	832.197	2.46	0.29	44.26	1.76	23.32	69.35	2523.09	0.0579221		
760.127	0.083	3.167	758.877	821.961	2.38	0.28	42.93	1.68	23.89	68.50	2591.58	0.0594946		
760.210	0.083	3.250	758.960	811.233	2.31	0.27	41.52	1.59	24.49	67.60	2659.19	0.0610465		
760.293	0.083	3.333	759.043	799.881	2.22	0.25	40.04	1.50	25.12	66.66	2725.84	0.0625768		
760.377	0.083	3.417	759.127	787.607	2.13	0.23	38.42	1.41	25.80	65.63	2791.48	0.0640835		
760.460	0.083	3.500	759.210	774.719	2.04	0.22	36.73	1.31	26.52	64.56	2856.04	0.0655656		
760.543	0.083	3.583	759.293	760.597	1.94	0.20	34.88	1.20	27.30	63.38	2919.42	0.0670207		
760.627	0.083	3.667	759.377	745.623	1.83	0.18	32.91	1.09	28.13	62.14	2981.56	0.0684471		
760.710	0.083	3.750	759.460	729.082	1.71	0.16	30.73	0.98	29.05	60.76	3042.31	0.0698419		
760.793	0.083	3.833	759.543	710.917	1.57	0.14	28.32	0.87	30.06	59.24	3101.56	0.0712019		
760.877	0.083	3.917	759.627	690.580	1.42	0.13	25.60	0.76	31.19	57.55	3159.10	0.0725231		
760.960	0.083	4.000	759.710	667.368	1.25	0.11	22.49	0.64	32.48	55.61	3214.72	0.0737998		
761.043	0.083	4.083	759.793	637.878	1.03	0.09	18.51	0.53	34.12	53.16	3267.88	0.0750201		
761.127	0.083	4.167	759.877	592.778	0.69	0.07	12.37	0.41	36.62	49.40	3317.27	0.0761541		
761.210	0.083	4.250	759.960	555.339	0.40	0.05	7.27	0.31	38.70	46.28	3363.55	0.0772165		
761.293	0.083	4.333	760.043	540.521	0.29	0.04	5.29	0.23	39.53	45.04	3408.60	0.0782506		
761.377	0.083	4.417	760.127	526.989	0.19	0.02	3.49	0.14	40.28	43.92	3452.51	0.0792587		
761.460	0.083	4.500	760.210	508.328	0.06	0.00	1.05	0.00	41.32	42.36	3494.87	0.0802312		
761.543	0.083	4.583	760.293	500.800	0.00	0.00	0.00	0.00	41.73	41.73	3536.60	0.0811893		
761.627	0.083	4.667	760.377	500.800	0.00	0.00	0.00	0.00	41.73	41.73	3578.34	0.0821473		
761.710	0.083	4.750	760.460	500.800	0.00	0.00	0.00	0.00	41.73	41.73	3620.07	0.0831054		
761.793	0.083	4.833	760.543	500.800	0.00	0.00	0.00	0.00	41.73	41.73	3661.80	0.0840635		
761.877	0.083	4.917	760.627	500.800	0.00	0.00	0.00	0.00	41.73	41.73	3703.54	0.0850215		
761.960	0.083	5.000	760.710	500.800	0.00	0.00	0.00	0.00	41.73	41.73	3745.27	0.0859796		
762.043	0.083	5.083	760.793	500.800	0.00	0.00	0.00	0.00	41.73	41.73	3787.00	0.0869377		
762.127	0.083	5.167	760.877	500.800	0.00	0.00	0.00	0.00	41.73	41.73	3828.74	0.0878957		
762.210	0.083	5.250	760.960	500.800	0.00	0.00	0.00	0.00	41.73	41.73	3870.47	0.0888538		
762.293	0.083	5.333	761.043	500.800	0.00	0.00	0.00	0.00	41.73	41.73	3912.20	0.0898119		
762.377	0.083	5.417	761.127	500.800	0.00	0.00	0.00	0.00	41.73	41.73	3953.94	0.0907699		
762.460	0.083	5.500	761.210	500.800	0.00	0.00	0.00	0.00	41.73	41.73	3995.67	0.0917280		

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11.04.2022

STATE OF TEXAS
TERRY R. HAGOOD
52960
REGISTERED
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TBPE Reg. No. F-12709

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DATE SIGNED: 4/30/2023
ISSUED FOR: AGENCY REVIEW

J:\2013\13-076a Burke CC lot J\11.0 Drawings\burke logo.jpg

. Eagles Nest 3
Lot KE - Bldgs. 6-9

3259 Eagles Nest St.
Round Rock, Texas,
78665

Issue

1 09.23.2022 50% CD - Pricing
2 11.04.2022 95% CD
3 12.05.2022 CORR/TCEQ
4 4.30.2023 TCEQ UPDATE

Project Number: 22-019g
Drawn By: JSR
Checked By: RB

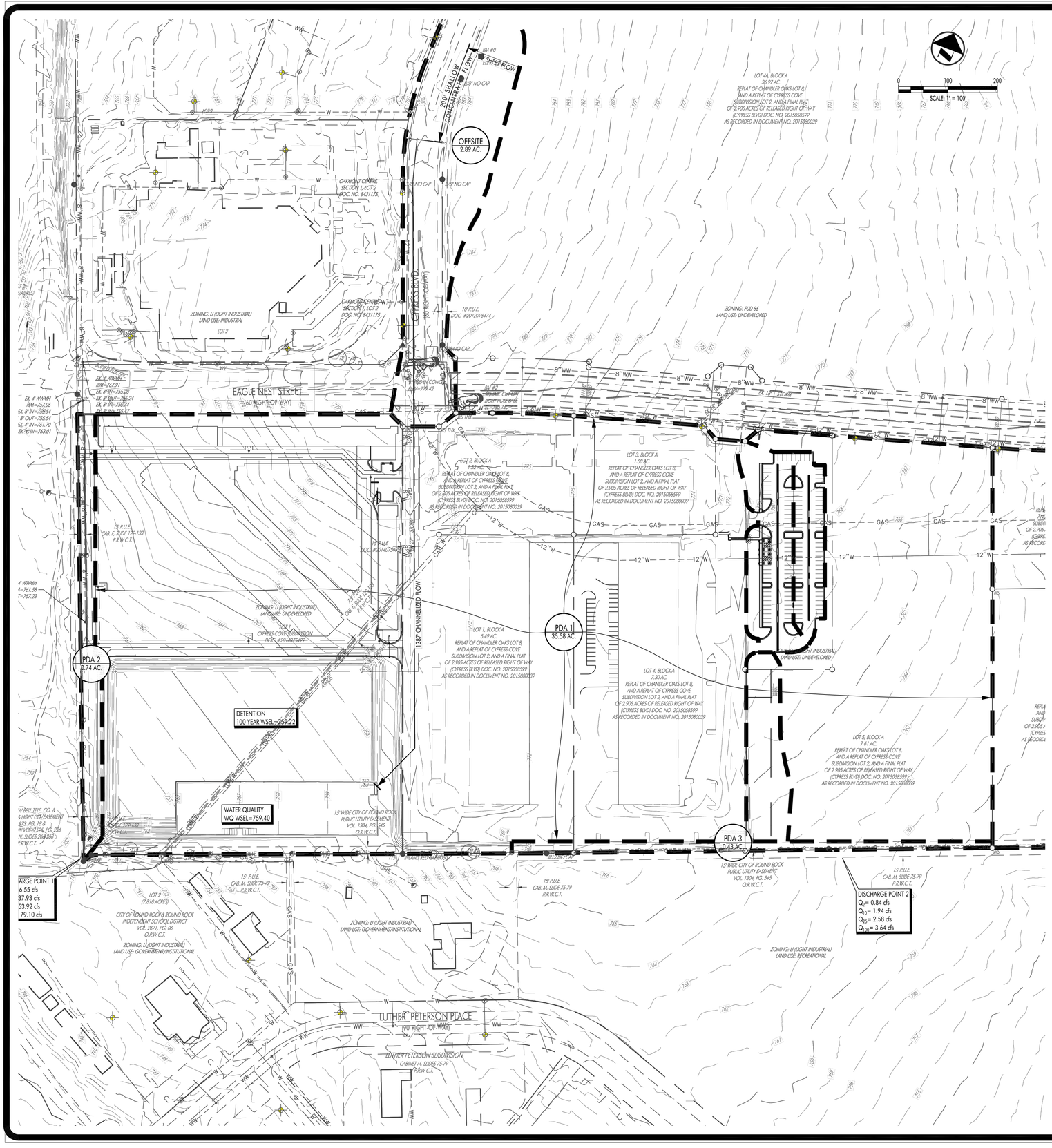
DRAINAGE AREA CALCULATIONS

PDA CALCULATIONS

11

SDP2208-0002

13-018.2 CALCS (2), 4/30/2023 1:22:16 PM, TerryH



Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: ?
Date Prepared: ?

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.
Characters shown in red are data entry fields.
Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

1. The Required Load Reduction for the total project: Calculations from RG-348 — Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson	
Total project area included in plan * =	36.75	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	29.40	acres
Total post-development impervious cover fraction * =	0.80	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	25590	lbs.

* **The values entered in these fields should be for the total project area.**

Number of drainage basins / outfalls areas leavng the plan area = 1

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. = 1

Total drainage basin/outfall area =	31.24	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	29.40	acres
Post-development impervious fraction within drainage basin/outfall area =	0.94	
$L_{M\ THIS\ BASIN}$ =	25590	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Sand Filter
Removal efficiency = 89 percent

Aqualogic Cartridge Filter
Bioretention
Contech StormFilter
Constructed Wetland
Extended Detention
Grassy Swale
Retention / Irrigation
Sand Filter
Stormceptor
Vegetated Filter Strips
Vortechs
Wet Basin
Wet Vault

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7: L_R = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

where:
A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	31.24	acres
A_I =	29.40	acres
A_P =	1.84	acres
L_R =	28999	lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ = 25590 lbs.

F = 0.88

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. Calculations from RG-348 — Pages 3-34 to 3-36

Rainfall Depth =	1.50	inches
Post Development Runoff Coefficient =	0.77	
On-site Water Quality Volume =	130695	cubic feet

Calculations from RG-348 — Pages 3-36 to 3-37

Off-site area draining to BMP =	2.89	acres
Off-site Impervious cover draining to BMP =	1.24	acres
Impervious fraction of off-site area =	0.43	
Off-site Runoff Coefficient =	0.32	
Off-site Water Quality Volume =	5050	cubic feet
Storage for Sediment =	27149	
Total Capture Volume (required water quality volume(s) x 1.20) =	162894	cubic feet

9. Filter area for Sand Filters Designed as Required in RG-348 — Pages 3-58 to 3-63

9A. Full Sedimentation and Filtration System

Water Quality Volume for sedimentation basin =	162894	cubic feet	
Minimum filter basin area =	7261	square feet	
Maximum sedimentation basin area =	65347	square feet	For minimum water depth of 2 feet
Minimum sedimentation basin area =	16337	square feet	For maximum water depth of 8 feet

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins =	162894	cubic feet	
Minimum filter basin area =	13069	square feet	
Maximum sedimentation basin area =	52278	square feet	For minimum water depth of 2 feet
Minimum sedimentation basin area =	3267	square feet	For maximum water depth of 8 feet

EXISTING TCEQ DRAINAGE AREA MAP
EAPP ID No. 11-11000805
THIS SHEET IS FOR REFERENCE ONLY
EDA-TCEQ
12 OF 72
SDP2208-0002

01 TCEQ CALCULATION TABLE NTS

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DATE SIGNED: 01/07/20
ISSUED FOR: AGENCY REVIEW

SITE DEVELOPMENT
LOT K TENANT ADDITIONAL PARKING
3161 EAGLES NEST STREET
ROUND ROCK, TX 78665

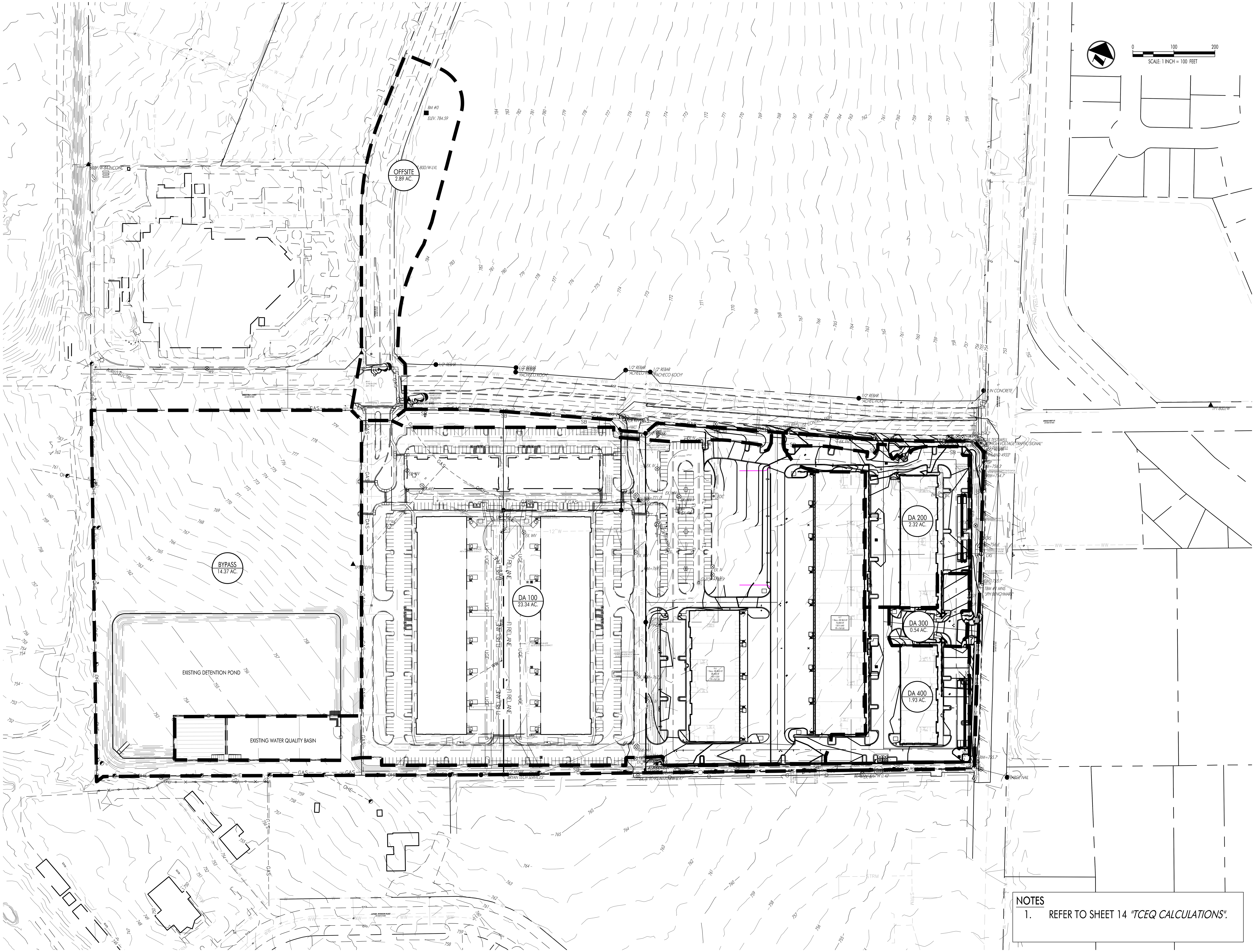
NO.	DATE	DESCRIPTION
		REVISIONS

HEA PROJECT NO. 13-018.1
ISSUED DATE: 01/07/20

TCEQ DRAINAGE AREA PLAN

SHEET NO.
C50C
14 OF 22
SITE PLAN PERMIT NO.
SSP1909-0001

Jan 07,2020-11:49am Z:\HEA\HEA Projects\Projects 13-000\13-018.1 Lot K Tenant Additional Parking\CAD Files\Civil\SDP\C50C.dwg
13-018.2EDA-TCEQ, 4/20/2023 1:22:26 PM, TerryH



NOTES

1. REFER TO SHEET 14 *"TCEQ CALCULATIONS"*.

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Seal:

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11.04.2022

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DATE SIGNED: 4/30/2023
ISSUED FOR: AGENCY REVIEW

J:\2013\13-076a Burke CC lot J\11.0 Drawings\burke logo.jpg

. Eagles Nest 3
Lot KE - Bldgs. 6-9

3259 Eagles Nest St.
Round Rock, Texas,
78665

Issue

1	09.23.2022	50% CD - Pricing
2	11.04.2022	95% CD
3	12.05.2022	CORR/TCEQ
4	4.30.2023	TCEQ UPDATE

Project Number: 22-019g
Drawn By: JSR
Checked By: RB

PROPOSED TCEQ DRAINAGE AREA MAP

PDA-TCEQ

13

SDP2208-0002

13-018.2PDA-TCEQ, 4/30/2023 1:22:48 PM, TerryH

EXISTING WATER QUALITY BASIN
SEE SHEET "PDA - TCEQ" - 13

Texas Commission on Environmental Quality
TSS Removal Calculations 04-20-2009
Project Name: Eagles Nest 3
Date Prepared: 4/30/2023

1. The Required Load Reduction for the total project:

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

where: $L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson	
Total project area included in plan =	45.26	acres
Predevelopment impervious area within the limits of the plan =	0.00	acres
Total post-development impervious area within the limits of the plan =	23.49	acres
Total post-development impervious cover fraction =	0.52	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	20446	lbs
Number of drainage basins / outfalls areas leaving the plan area =	5	

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. =	100	
Total drainage basin/outfall area =	23.34	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	12.67	acres
Post-development impervious fraction within drainage basin/outfall area =	0.54	
$L_{M\ THIS\ BASIN}$ =	11028	lbs

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	Sand Filter	
Removal efficiency	89	percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

L_R = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

where: A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	23.34	acres
A_I =	12.67	acres
A_P =	10.67	acres
L_R =	12647	lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ =	11028	lbs.
F =	0.87	

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area.

Rainfall Depth =	1.44	inches
Post Development Runoff Coefficient =	0.38	
On-site Water Quality Volume =	46638	cubic feet
Off-site area draining to BMP =	2.85	acres
Off-site Impervious cover draining to BMP =	1.24	acres
Impervious fraction of off-site area =	0.43	
Off-site Runoff Coefficient =	0.32	
Off-site Water Quality Volume =	4848	cubic feet
Storage for Sediment =	10297	
Total Capture Volume (required water quality volume(s) x 1.20) =	61783	cubic feet

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins =	61783	cubic feet
Minimum filter basin area	4664	square feet
Maximum sedimentation basin area =	18655	square feet
Minimum sedimentation basin area =	1166	square feet

UPFLOW FILTER UNIT SYSTEM "C"
SEE SHEET C30 - 29

Calculations for Texas Commission on Environmental Quality TSS Removal Calculations
Hydro International Up-Flo® Filter - Sizing Spreadsheet Revision 1.0

Project Name: Revised Eagles Nest 3
Date Prepared: 4/21/2023

1. The Required Load Reduction for the Total Project.

Calculations from RG-348, Pages 3-27 to 3-30
Page 3-29 Equation 3.3:
$L_M = 27.2(A_N \times P)$

Where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson	
Total project area included in plan =	45.26	acres
Predevelopment impervious area within the limits of the plan =	0.00	acres
Total post-development impervious area within the limits of the plan =	30.04	acres
Total post-development impervious cover fraction =	0.66	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	26147	lb
Number of drainage basins / outfalls areas leaving the plan area =	1	

2. Drainage Basin Parameters (This information should be provided for each basin).

Drainage Basin/Outfall Area No. =	DA 200	
Total drainage basin/outfall area =	2.32	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	2.16	acres
Post-development impervious fraction within drainage basin/outfall area =	0.93	
$L_{M\ THIS\ BASIN}$ =	1,880	lb

3. Indicate the Proposed BMP Code for this Basin.

Proposed BMP =	Up-Flo® Filter CPZ	
Removal efficiency =	78	percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the Selected BMP Type.

RG-348 Page 3-33 Equation 3.7:
L_R = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

Where:
A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	2.32	acres
A_I =	2.16	acres
A_P =	0.16	acres
L_R =	1,868	lb

5. Calculate Fraction of Annual Runoff to Treat the Drainage Basin / Outfall Area. Note

Desired $L_{M\ THIS\ BASIN}$ =	1,880	lb
F =	1.007	

6. Calculate Capture Volume Required by the BMP Type for this Drainage Basin / Outfall Area.

Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	4.00	inches
Post Development Runoff Coefficient =	0.76	
On-site Water Quality Volume =	25,606	cubic feet

Calculations from RG-348 Pages 3-36 to 3-37

Off-site area draining to BMP =	0.00	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	5,121	cubic feet
Total Capture Volume (required water quality volume x 1.20) =	30,728	cubic feet

7. Up-Flo® Filter TSS Load Based Sizing.

Minimum Filter Modules based on L_R =	14	modules
Maximum Filter Release Rate =	0.79	cfs

7a. Additional Filter Modules to Increase Filter TSS Load Capacity:

Enter number of additional Modules =	4	modules
Total Number of Modules =	18	modules
Maximum Filter Release Rate =	1.02	cfs
Annual TSS Load Capacity for Filter =	2,396	lb

Recalculated Capture Volume Required:

F =	0.785	
Rainfall Depth =	1.00	inches
On-site Water Quality Volume =	6,402	cubic feet
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	1,280	cubic feet
Total Capture Volume (required water quality volume x 1.20) =	7,682	cubic feet

Check for WQv Requirement Based on Filter Inflow and Outflow Equalization

8. Up-Flo® Filter Sizing Based on Design Storm (No storage).

Rainfall Intensity i =	0.55	in/hr
On Site Inflow Rate =	0.97	cfs
Offsite Inflow Rate =	0.00	cfs
Total Inflow Rate =	0.97	cfs

UPFLOW FILTER UNIT SYSTEM "D"
SEE SHEET C30 - 29

Calculations for Texas Commission on Environmental Quality TSS Removal Calculations
Hydro International Up-Flo® Filter - Sizing Spreadsheet Revision 1.0

Project Name: Revised Eagles Nest 3
Date Prepared: 4/21/2023

1. The Required Load Reduction for the Total Project.

Calculations from RG-348, Pages 3-27 to 3-30
Page 3-29 Equation 3.3:
$L_M = 27.2(A_N \times P)$

Where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson	
Total project area included in plan =	45.26	acres
Predevelopment impervious area within the limits of the plan =	0.00	acres
Total post-development impervious area within the limits of the plan =	30.04	acres
Total post-development impervious cover fraction =	0.66	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	26147	lb
Number of drainage basins / outfalls areas leaving the plan area =	1	

2. Drainage Basin Parameters (This information should be provided for each basin).

Drainage Basin/Outfall Area No. =	DA 300	
Total drainage basin/outfall area =	0.55	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.45	acres
Post-development impervious fraction within drainage basin/outfall area =	0.82	
$L_{M\ THIS\ BASIN}$ =	389	lb

3. Indicate the Proposed BMP Code for this Basin.

Proposed BMP =	Up-Flo® Filter CPZ	
Removal efficiency =	78	percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the Selected BMP Type.

RG-348 Page 3-33 Equation 3.7:
L_R = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

Where:
A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	0.55	acres
A_I =	0.45	acres
A_P =	0.10	acres
L_R =	390	lb

5. Calculate Fraction of Annual Runoff to Treat the Drainage Basin / Outfall Area. Note

Desired $L_{M\ THIS\ BASIN}$ =	390	lb
F =	1.000	

6. Calculate Capture Volume Required by the BMP Type for this Drainage Basin / Outfall Area.

Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	4.00	inches
Post Development Runoff Coefficient =	0.65	
On-site Water Quality Volume =	5,188	cubic feet

Calculations from RG-348 Pages 3-36 to 3-37

Off-site area draining to BMP =	0.00	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	1,038	cubic feet
Total Capture Volume (required water quality volume x 1.20) =	6,226	cubic feet

7. Up-Flo® Filter TSS Load Based Sizing.

Minimum Filter Modules based on L_R =	3	modules
Maximum Filter Release Rate =	0.17	cfs

7a. Additional Filter Modules to Increase Filter TSS Load Capacity:

Enter number of additional Modules =	1	modules
Total Number of Modules =	4	modules
Maximum Filter Release Rate =	0.22	cfs
Annual TSS Load Capacity for Filter =	522	lb

Recalculated Capture Volume Required:

F =	0.747	
Rainfall Depth =	0.92	inches
On-site Water Quality Volume =	1,188	cubic feet
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	238	cubic feet
Total Capture Volume (required water quality volume x 1.20) =	1,426	cubic feet

Check for WQv Requirement Based on Filter Inflow and Outflow Equalization

8. Up-Flo® Filter Sizing Based on Design Storm (No storage).

Rainfall Intensity i =	0.44	in/hr
On Site Inflow Rate =	0.16	cfs
Offsite Inflow Rate =	0.00	cfs
Total Inflow Rate =	0.16	cfs

UPFLOW FILTER UNIT SYSTEM "E"
SEE SHEET C30 - 29

Calculations for Texas Commission on Environmental Quality TSS Removal Calculations
Hydro International Up-Flo® Filter - Sizing Spreadsheet Revision 1.0

Project Name: Eagles Nest 3
Date Prepared: 4/28/2023

1. The Required Load Reduction for the Total Project.

Calculations from RG-348, Pages 3-27 to 3-30
Page 3-29 Equation 3.3:
$L_M = 27.2(A_N \times P)$

Where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson	
Total project area included in plan =	45.26	acres
Predevelopment impervious area within the limits of the plan =	0.00	acres
Total post-development impervious area within the limits of the plan =	30.04	acres
Total post-development impervious cover fraction =	0.66	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	26147	lb
Number of drainage basins / outfalls areas leaving the plan area =	1	

2. Drainage Basin Parameters (This information should be provided for each basin).

Drainage Basin/Outfall Area No. =	DA 400a	
Total drainage basin/outfall area =	0.16	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.16	acres
Post-development impervious fraction within drainage basin/outfall area =	0.96	
$L_{M\ THIS\ BASIN}$ =	136	lb

3. Indicate the Proposed BMP Code for this Basin.

Proposed BMP =	Up-Flo® Filter CPZ	
Removal efficiency =	78	percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the Selected BMP Type.

RG-348 Page 3-33 Equation 3.7:
L_R = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

Where:
A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	0.16	acres
A_I =	0.16	acres
A_P =	0.00	acres
L_R =	138	lb

5. Calculate Fraction of Annual Runoff to Treat the Drainage Basin / Outfall Area. Note

Desired $L_{M\ THIS\ BASIN}$ =	138	lb
F =	0.999	

6. Calculate Capture Volume Required by the BMP Type for this Drainage Basin / Outfall Area.

Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	4.00	inches
Post Development Runoff Coefficient =	0.82	
On-site Water Quality Volume =	1,896	cubic feet

Calculations from RG-348 Pages 3-36 to 3-37

Off-site area draining to BMP =	0.00	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	379	cubic feet
Total Capture Volume (required water quality volume x 1.20) =	2,276	cubic feet

7. Up-Flo® Filter TSS Load Based Sizing.

Minimum Filter Modules based on L_R =	1	modules
Maximum Filter Release Rate =	0.06	cfs

7a. Additional Filter Modules to Increase Filter TSS Load Capacity:

Enter number of additional Modules =	1	modules
Total Number of Modules =	2	modules
Maximum Filter Release Rate =	0.11	cfs
Annual TSS Load Capacity for Filter =	270	lb

Recalculated Capture Volume Required:

F =	0.511	
Rainfall Depth =	0.44	inches
On-site Water Quality Volume =	206	cubic feet
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	41	cubic feet
Total Capture Volume (required water quality volume x 1.20) =	247	cubic feet

Check for WQv Requirement Based on Filter Inflow and Outflow Equalization

8. Up-Flo® Filter Sizing Based on Design Storm (No storage).

Rainfall Intensity i =	0.12	in/hr
On Site Inflow Rate =	0.02	cfs
Offsite Inflow Rate =	0.00	cfs
Total Inflow Rate =	0.02	cfs

UPFLOW FILTER UNIT SYSTEM "F"
SEE SHEET C30 - 29

Calculations for Texas Commission on Environmental Quality TSS Removal Calculations
Hydro International Up-Flo® Filter - Sizing Spreadsheet Revision 1.0

Project Name: Revised Eagles Nest 3
Date Prepared: 4/21/2023

1. The Required Load Reduction for the Total Project.

Calculations from RG-348, Pages 3-27 to 3-30
Page 3-29 Equation 3.3:
$L_M = 27.2(A_N \times P)$

Where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson	
Total project area included in plan =	45.26	acres
Predevelopment impervious area within the limits of the plan =	0.00	acres
Total post-development impervious area within the limits of the plan =	30.04	acres
Total post-development impervious cover fraction =	0.66	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	26147	lb
Number of drainage basins / outfalls areas leaving the plan area =	1	

2. Drainage Basin Parameters (This information should be provided for each basin).

Drainage Basin/Outfall Area No. =	DA 400b	
Total drainage basin/outfall area =	1.77	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	1.66	acres
Post-development impervious fraction within drainage basin/outfall area =	0.94	
$L_{M\ THIS\ BASIN}$ =	1,445	lb

3. Indicate the Proposed BMP Code for this Basin.

Proposed BMP =	Up-Flo® Filter CPZ	
Removal efficiency =	78	percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the Selected BMP Type.

RG-348 Page 3-33 Equation 3.7:
L_R = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

Where:
A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	1.77	acres
A_I =	1.66	acres
A_P =	0.11	acres
L_R =	1,435	lb

5. Calculate Fraction of Annual Runoff to Treat the Drainage Basin / Outfall Area. Note

Desired $L_{M\ THIS\ BASIN}$ =	1,445	lb
F =	1.007	

6. Calculate Capture Volume Required by the BMP Type for this Drainage Basin / Outfall Area.

Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	4.00	inches
Post Development Runoff Coefficient =	0.77	
On-site Water Quality Volume =	19,678	cubic feet

Calculations from RG-348 Pages 3-36 to 3-37

Off-site area draining to BMP =	0.00	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	3,936	cubic feet
Total Capture Volume (required water quality volume x 1.20) =	23,614	cubic feet

7. Up-Flo® Filter TSS Load Based Sizing.

Minimum Filter Modules based on L_R =	11	modules
Maximum Filter Release Rate =	0.61	cfs

7a. Additional Filter Modules to Increase Filter TSS Load Capacity:

Enter number of additional Modules =	3	modules
Total Number of Modules =	14	modules
Maximum Filter Release Rate =	0.78	cfs
Annual TSS Load Capacity for Filter =	1,831	lb

Recalculated Capture Volume Required:

F =	0.789	
Rainfall Depth =	1.04	inches
On-site Water Quality Volume =	5,116	cubic feet
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	1,023	cubic feet
Total Capture Volume (required water quality volume x 1.20) =	6,140	cubic feet

Check for WQv Requirement Based on Filter Inflow and Outflow Equalization

8. Up-Flo® Filter Sizing Based on Design Storm (No storage).

Rainfall Intensity i =	0.55	in/hr
On Site Inflow Rate =	0.75	cfs
Offsite Inflow Rate =	0.00	cfs
Total Inflow Rate =	0.75	cfs

Texas Commission on Environmental Quality
TSS Removal Calculations 04-20-2009
Project Name: Eagles Nest 3
Date Prepared: 4/30/2023

1. The Required Load Reduction for the total project:

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

where: $L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson	
Total project area included in plan =	45.26	acres
Predevelopment impervious area within the limits of the plan =	0.00	acres
Total post-development impervious area within the limits of the plan =	23.49	acres
Total post-development impervious cover fraction =	0.52	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	20446	lbs
Number of drainage basins / outfalls areas leaving the plan area =	5	

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. =	BYPASS	
Total drainage basin/outfall area =	14.37	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious fraction within drainage basin/outfall area =	0.00	
$L_{M\ THIS\ BASIN}$ =	0	lbs

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =		
Removal efficiency	#N/A	percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

L_R = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

where: A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	14.37	acres
A_I =	0.00	acres
A_P =	14.37	acres
L_R =	#N/A	lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ =	0	lbs.
F =	#N/A	

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area.

Rainfall Depth =	#N/A	inches
Post Development Runoff Coefficient =	0.02	
On-site Water Quality Volume =	#N/A	cubic feet
Off-site area draining to BMP =	0.00	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	#N/A	cubic feet
Storage for Sediment =	#N/A	
Total Capture Volume (required water quality volume(s) x 1.20) =	#N/A	cubic feet

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Seal:

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11.04.2022

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JOB NO. 13-018.2 © 2022 HEA, Inc.
DATE SIGNED: 4/30/2023
ISSUED FOR: AGENCY REVIEW

Eagles Nest 3
Lot KE - Bldgs. 6-9
3259 Eagles Nest St.
Round Rock, Texas,
78665

Issue

1	09.23.2022	50% CD - Pricing
2	11.04.2022	95% CD
3	12.05.2022	CORR/TCEQ
4	4.30.2023	TCEQ UPDATE

Project Number: 22-019g
Drawn By: JSR
Checked By: RB

DRAINAGE CALCULATIONS

TCEQ CALCULATIONS

CITY OF ROUND ROCK GENERAL CONSTRUCTION NOTES

GENERAL NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF ROUND ROCK STANDARD SPECIFICATIONS
2. ANY EXISTING UTILITIES, PAVEMENT, CURBS, SIDEWALKS, STRUCTURES, TREES, ETC., NOT PLANNED FOR DEMOLITION OR REMOVAL THAT ARE DAMAGED OR REMOVED SHALL BE REPAIRED OR REPLACED AT CONTRACTOR'S EXPENSE.
3. THE CONTRACTOR SHALL VERIFY ALL DEPTHS AND LOCATIONS OF EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION. ANY DISCREPANCIES WITH THE CONSTRUCTION PLANS FOUND IN THE FIELD SHALL BE BROUGHT IMMEDIATELY TO THE ATTENTION OF THE ENGINEER WHO SHALL BE RESPONSIBLE FOR REVISING THE PLANS AS APPROPRIATE.
4. MANHOLE FRAMES, COVERS, VALVES, CLEANOUTS, ETC. SHALL BE RAISED TO FINISHED GRADE PRIOR TO FINAL PAVING CONSTRUCTION.
5. THE CONTRACTOR SHALL GIVE THE CITY OF ROUND ROCK 48 HOURS NOTICE BEFORE BEGINNING EACH PHASE OF CONSTRUCTION. TELEPHONE 512-218-5428 (PLANNING AND DEVELOPMENT SERVICES DEPARTMENT).
6. ALL AREAS DISTURBED OR EXPOSED DURING CONSTRUCTION SHALL BE REVEGETATED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS AS WELL AS THE STANDARD SPECIFICATIONS MANUAL SERIES 600. REVEGETATION OF ALL DISTURBED OR EXPOSED AREAS SHALL CONSIST OF SODDING OR SEEDING, AT THE CONTRACTOR'S OPTION. HOWEVER, THE TYPE OF REVEGETATION MUST EQUAL OR EXCEED THE TYPE OF VEGETATION PRESENT BEFORE CONSTRUCTION.
7. PRIOR TO ANY CONSTRUCTION, THE ENGINEER SHALL CONVENE A PRECONSTRUCTION CONFERENCE BETWEEN THE CITY OF ROUND ROCK, HIMSELF, THE CONTRACTOR, OTHER UTILITY COMPANIES, ANY AFFECTED PARTIES AND ANY OTHER ENTITY THE CITY OR ENGINEER MAY REQUIRE.
8. THE CONTRACTOR AND THE ENGINEER SHALL KEEP ACCURATE RECORDS OF ALL CONSTRUCTION THAT DEVIATES FROM THE PLANS. ANY DEVIATIONS SHALL BE INCORPORATED INTO A REVISION AND APPROVED BY PLANNING AND DEVELOPMENT SERVICES. THE ENGINEER SHALL FURNISH THE CITY OF ROUND ROCK ACCURATE "AS-BUILT RECORD" DRAWINGS FOLLOWING COMPLETION OF ALL CONSTRUCTION. THESE "AS-BUILT RECORD" DRAWINGS SHALL MEET WITH THE SATISFACTION OF THE PLANNING AND DEVELOPMENT SERVICES DEPARTMENT PRIOR TO FINAL ACCEPTANCE.
9. THE CITY OF ROUND ROCK SHALL NOT BE PETITIONED FOR ACCEPTANCE UNTIL ALL NECESSARY EASEMENT DOCUMENTS HAVE BEEN SIGNED AND RECORDED.
10. WHEN CONSTRUCTION IS BEING CARRIED OUT WITHIN EASEMENTS, THE CONTRACTOR SHALL CONFINE HIS WORK TO WITHIN THE PERMANENT AND ANY TEMPORARY EASEMENTS. PRIOR TO FINAL ACCEPTANCE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL TRASH AND DEBRIS WITHIN THE PERMANENT AND TEMPORARY EASEMENTS. CLEAN-UP SHALL BE TO THE SATISFACTION OF THE PLANNING AND DEVELOPMENT SERVICES INSPECTOR.
11. PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL APPLY FOR AND SECURE ALL PROPER PERMITS FROM THE APPROPRIATE AUTHORITIES.
12. AVAILABLE BENCHMARKS THAT MAY BE UTILIZED FOR THE CONSTRUCTION OF THIS PROJECT ARE DESCRIBED AS FOLLOWS:

TBM #1 - DESCRIPTION (SEE SP1) IS A MAG NAIL WITH METAL WASHER STAMPED "JPH BENCHMARK" SET IN CONCRETE CURB INLET IN THE WEST MARGIN OF SUNRISE ROAD, LOCATED APPROX 400 FEET SOUTHEASTERLY FROM THE INTERSECTION OF SUNRISE ROAD AND EAGLES NEST STREET, AND APPROX 1,100 FEET FROM THE INTERSECTION OF SUNRISE ROAD AND LUTHER PETERSON PLACE.
ELEV = 755.76' (NAVD'88) GEOID 18

TBM #2 - DESCRIPTION (SEE SP1) IS A MAG NAIL WITH METAL WASHER STAMPED "JPH BENCHMARK" SET IN CONCRETE CURB INLET IN THE SOUTHEAST CORNER OF LOT4A SHOWN HEREON, LOCATED APPROX 805 FEET SOUTHWESTERLY FROM THE WEST RIGHT-OF-WAY LINE OF EAGLES NEST STREET.
ELEV = 766.49' (NAVD'88) GEOID 18

TRENCH SAFETY NOTES:

1. IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U. S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH IN EITHER HARD AND COMPACT OR SOFT AND UNSTABLE SOIL SHALL BE SLOPED, SHORED, SHEETED, BRACED OR OTHERWISE SUPPORTED. FURTHERMORE, ALL TRENCHES LESS THAN 5 FEET IN DEPTH SHALL ALSO BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT MAY BE EXPECTED. A SITE SPECIFIC ENGINEERED TRENCH SAFETY SYSTEM, ACCEPTED BY PLANNING AND DEVELOPMENT SERVICES, SHALL BE UTILIZED FOR THIS PROJECT.
2. N ACCORDANCE WITH THE U. S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, WHEN PERSONS ARE IN TRENCHES 4 FEET DEEP OR MORE, ADEQUATE MEANS OF EXIT, SUCH AS A LADDER OR STEPS, MUST BE PROVIDED AND LOCATED SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATERAL TRAVEL.
3. IF TRENCH SAFETY SYSTEM DETAILS WERE NOT PROVIDED IN THE PLANS BECAUSE TRENCHES WERE ANTICIPATED TO BE LESS THAN 5 FEET IN DEPTH AND DURING CONSTRUCTION IT IS FOUND THAT TRENCHES ARE IN FACT 5 FEET OR MORE IN DEPTH OR OR TRENCHES LESS THAN 5 FEET IN DEPTH ARE IN AN AREA WHERE HAZARDOUS GROUND MOVEMENT IS EXPECTED, ALL CONSTRUCTION SHALL CEASE, THE TRENCHED AREA SHALL BE BARRICADED AND THE ENGINEER NOTIFIED IMMEDIATELY. CONSTRUCTION SHALL NOT RESUME UNTIL APPROPRIATE TRENCH SAFETY SYSTEM DETAILS, AS DESIGNED BY A PROFESSIONAL ENGINEER, ARE RETAINED AND COPIES SUBMITTED TO THE CITY OF ROUND ROCK.

STREET AND DRAINAGE NOTES:

1. ALL TESTING SHALL BE DONE BY AN INDEPENDENT LABORATORY AT THE OWNER'S EXPENSE. ANY RETESTING SHALL BE PAID FOR BY THE CONTRACTOR. A CITY INSPECTOR SHALL BE PRESENT DURING ALL TESTS. TESTING SHALL BE COORDINATED WITH THE CITY INSPECTOR AND HE SHALL BE GIVEN A MINIMUM OF 24 HOURS NOTICE PRIOR TO ANY TESTING.
2. BACKFILL BEHIND THE CURB SHALL BE COMPACTED TO OBTAIN A MINIMUM OF 95% MAXIMUM DENSITY TO WITHIN 3" OF TOP OF CURB. MATERIAL USED SHALL BE PRIMARILY GRANULAR WITH NO ROCKS LARGER THAN 6" IN THE GREATEST DIMENSION. THE REMAINING 3" SHALL BE CLEAN TOPSOIL FREE FROM ALL CLODS AND SUITABLE FOR SUSTAINING PLANT LIFE.
3. DEPTH OF COVER FOR ALL CROSSINGS UNDER PAVEMENT INCLUDING GAS, ELECTRIC, TELEPHONE, CABLE TV, WATER SERVICES, ETC., SHALL BE A MINIMUM OF 30" BELOW SUBGRADE.
4. STREET RIGHTS-OF-WAY SHALL BE GRADED AT A SLOPE OF 1/4" PER FOOT TOWARD THE CURB UNLESS OTHERWISE INDICATED. HOWEVER, IN NO CASE SHALL THE WIDTH OF RIGHT-OF-WAY AT 1/4" PER FOOT SLOPE BE LESS THAN 10 FEET UNLESS A SPECIFIC REQUEST FOR AN ALTERNATE GRADING SCHEME IS MADE TO AND ACCEPTED BY THE CITY OF ROUND ROCK PLANNING AND DEVELOPMENT SERVICES DEPARTMENT.
5. BARRICADES BUILT TO CITY OF ROUND ROCK STANDARDS SHALL BE CONSTRUCTED ON ALL DEAD-END STREETS AND AS NECESSARY DURING CONSTRUCTION TO MAINTAIN JOB AND PUBLIC SAFETY.
6. ALL R.C.P. SHALL BE MINIMUM CLASS III.
7. THE SUBGRADE MATERIAL FOR THE STREETS SHOWN HEREIN WAS TESTED BY: ____ALLIANCE ENGINEERING GROUP____ IN A REPORT DATED __SEPT 15, 2022________, AND THE PAVING SECTIONS DESIGNED IN ACCORDANCE WITH THE CURRENT CITY OF ROUND ROCK DESIGN CRITERIA. THE PAVING SECTIONS ARE TO BE CONSTRUCTED AS FOLLOWS: SEE DETAIL SHEET C70

STREET	STATION	FLEX BASE THICKNESS	HMAC THICKNESS	LIME STAB THICKNESS

THE GEOTECHNICAL ENGINEER SHALL INSPECT THE SUBGRADE FOR COMPLIANCE WITH THE DESIGN ASSUMPTIONS MADE DURING PREPARATION OF THE SOILS REPORT. ANY ADJUSTMENTS THAT ARE REQUIRED SHALL BE MADE THROUGH REVISION OF THE CONSTRUCTION PLANS.

8. WHERE PLASTICITY INDEX (PI) OVER 20, SUBGRADES MUST BE STABILIZED UTILIZING A METHOD ACCEPTABLE TO THE CITY ENGINEER. ANY LIME SHALL BE APPLIED TO THE SUBGRADE SOIL IN SLURRY FORM UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER. THE GEOTECHNICAL ENGINEER SHALL RECOMMEND AN APPROPRIATE SUBGRADE STABILIZATION IF SULFATES ARE DETERMINED TO BE PRESENT.

WATER AND WASTEWATER NOTES:

1. PIPE MATERIAL AND ACCESSORIES SHALL BE OF NEW MATERIAL ONLY. WATER MAINS SHALL BE DUCTILE IRON (AWWA C-110, C-104 AND ANSI/AWWA C-153/A21.53-84, MIN. PRESSURE CLASS 200) OR PVC (AWWA C-900/C-C905, ASTM F477 AND D3139, MIN. PRESSURE CLASS 200), OR HDPE (AWWA C-906, ASTM F714, NSF 61 AND PE 3408 BY ASTM 3350) WITH A MINIMUM 11 DIMENSION RATIO AND (DR) DUCTILE IRON PIPE SIZE (DIPS). SERVICE PIPING SHALL BE COPPER SEAMLESS TYPE K OR POLYETHYLENE (BLACK, 200 PSI, DR9) AS ACCEPTED BY THE CITY.
2. PIPE MATERIAL FOR PRESSURE WASTEWATER MAINS SHALL BE DR 26 HIGHER PRESSURE RATED (150+PSI), OR DUCTILE IRON (AWWA C-100, MIN. CLASS 200). PIPE MATERIAL FOR GRAVITY WASTEWATER MAINS SHALL BE PVC (ASTM D2241 OR D3034, MAX. DR-26), DUCTILE IRON (AWWA C-100, MIN. CLASS 200).
3. UNLESS OTHERWISE ACCEPTED BY THE CITY ENGINEER, DEPTH OF COVER FOR ALL LINES OUT OF THE PAVEMENT SHALL BE 42" MINIMUM AND DEPTH OF COVER FOR ALL LINES UNDER PAVEMENT SHALL BE A MINIMUM OF 30" BELOW SUBGRADE.
4. ALL FIRE HYDRANT LEADS SHALL BE DUCTILE IRON PIPE (AWWA C-100, MIN. CLASS 200).
5. ALL IRON PIPE AND FITTINGS SHALL BE WRAPPED WITH MINIMUM 8-MIL POLYETHYLENE AND SEALED WITH DUCT TAPE OR EQUAL ACCEPTED BY THE CITY ENGINEER.
6. THE CONTRACTOR SHALL CONTACT THE CITY OF ROUND ROCK CIVIL INSPECTOR TO COORDINATE UTILITY TIE-INS AND NOTIFY HIM AT LEAST 48 HOURS PRIOR TO CONNECTING TO EXISTING LINES.
7. ALL MANHOLES SHALL BE CONCRETE WITH CAST IRON RING AND COVER. ALL MANHOLES LOCATED OUTSIDE OF THE PAVEMENT SHALL HAVE BOLTED COVERS. TAPPING OF FIBERGLASS MANHOLES SHALL NOT BE ALLOWED.
8. THE CONTRACTOR MUST OBTAIN A BULK WATER PERMIT OR PURCHASE AND INSTALL A WATER METER FOR ALL WATER USED DURING CONSTRUCTION. A COPY OF THIS PERMIT MUST BE CARRIED AT ALL TIMES BY ALL WHO USE WATER.
9. LINE FLUSHING OR ANY ACTIVITY USING A LARGE QUANTITY OF WATER MUST BE SCHEDULED WITH THE CITY OF ROUND ROCK INSPECTOR.
10. THE CONTRACTOR, AT HIS EXPENSE, SHALL PERFORM STERILIZATION OF ALL POTABLE WATER LINES CONSTRUCTED AND SHALL PROVIDE ALL EQUIPMENT (INCLUDING TEST GAUGES), SUPPLIES (INCLUDING CONCENTRATED CHLORINE DISINFECTING MATERIAL), AND NECESSARY LABOR REQUIRED FOR THE STERILIZATION PROCEDURE. THE STERILIZATION PROCEDURE SHALL BE MONITORED BY CITY OF ROUND ROCK PERSONNEL. WATER SAMPLES WILL BE COLLECTED BY THE CITY OF ROUND ROCK TO VERIFY EACH TREATED LINE HAS ATTAINED AN INITIAL CHLORINE CONCENTRATION OF 50 PPM. WHERE MEANS OF FLUSHING IS NECESSARY, THE CONTRACTOR, AT HIS EXPENSE, SHALL PROVIDE FLUSHING DEVICES AND REMOVE SAID DEVICES PRIOR TO FINAL ACCEPTANCE BY THE CITY OF ROUND ROCK.
11. SAMPLING TAPS SHALL BE BROUGHT UP TO 3 FEET ABOVE GRADE AND SHALL BE EASILY ACCESSIBLE FOR CITY PERSONNEL. AT THE CONTRACTOR'S REQUEST, AND IN HIS PRESENCE, SAMPLES FOR BACTERIOLOGICAL TESTING WILL BE COLLECTED BY THE CITY OF ROUND ROCK NOT LESS THAN 24 HOURS AFTER THE TREATED LINE HAS BEEN FLUSHED OF THE CONCENTRATED CHLORINE SOLUTION AND CHARGED WITH WATER APPROVED BY THE CITY. THE CONTRACTOR SHALL SUPPLY A CHECK OR MONEY ORDER, PAYABLE TO THE CITY OF ROUND ROCK, TO COVER THE FEE CHARGED FOR TESTING EACH WATER SAMPLE. CITY OF ROUND ROCK FEE AMOUNTS MAY BE OBTAINED BY CALLING THE CITY OF ROUND ROCK CIVIL INSPECTOR.
12. THE CONTRACTOR, AT HIS EXPENSE, SHALL PERFORM QUALITY TESTING FOR ALL WASTEWATER PIPE INSTALLED AND PRESSURE PIPE HYDROSTATIC TESTING OF ALL WATER LINES CONSTRUCTED AND SHALL PROVIDE ALL EQUIPMENT (INCLUDING PUMPS AND GAUGES), SUPPLIES AND LABOR NECESSARY TO PERFORM THE TESTS. QUALITY AND PRESSURE TESTING SHALL BE MONITORED BY CITY OF ROUND ROCK PERSONNEL.
13. THE CONTRACTOR SHALL COORDINATE TESTING WITH THE CITY OF ROUND ROCK CIVIL INSPECTOR AND PROVIDE NO LESS THAN 24 HOURS NOTICE PRIOR TO PERFORMING STERILIZATION, QUALITY TESTING OR PRESSURE TESTING.
14. THE CONTRACTOR SHALL NOT OPEN OR CLOSE ANY VALVES UNLESS AUTHORIZED BY THE CITY OF ROUND ROCK.
15. ALL VALVE BOXES AND COVERS SHALL BE CAST IRON.
16. ALL WATER SERVICE, WASTEWATER SERVICE AND VALVE LOCATIONS SHALL BE APPROPRIATELY MARKED "(THROUGH CHISELING AND PAINTING)" AS FOLLOWS:

WATER SERVICE	"W" ON TOP OF CURB
WASTEWATER SERVICE	"S" ON TOP OF CURB
VALVE	"V" ON FACE OF CURB

TOOLS FOR MARKING THE CURB SHALL BE PROVIDED BY THE CONTRACTOR. OTHER APPROPRIATE MEANS OF MARKING SERVICE AND VALVE LOCATIONS SHALL BE PROVIDED IN AREAS WITHOUT CURBS. SUCH MEANS OF MARKING SHALL BE AS SPECIFIED BY THE ENGINEER AND ACCEPTED BY THE CITY OF ROUND ROCK.

17. CONTACT THE CITY OF ROUND ROCK PLANNING AND DEVELOPMENT SERVICES DEPARTMENT AT 218-5555 FOR ASSISTANCE IN OBTAINING EXISTING WATER AND WASTEWATER LOCATIONS.
18. THE CITY OF ROUND ROCK FIRE DEPARTMENT SHALL BE NOTIFIED 48 HOURS PRIOR TO TESTING OF ANY BUILDING SPRINKLER PIPING IN ORDER THAT THE FIRE DEPARTMENT MAY MONITOR SUCH TESTING.
19. SAND, AS DESCRIBED IN SPECIFICATION ITEM 510 PIPE, SHALL NOT BE USED AS BEDDING FOR WATER AND WASTEWATER LINES. ACCEPTABLE BEDDING MATERIALS ARE PIPE BEDDING STONE, PEA GRAVEL AND IN LIEU OF SAND, A NATURALLY OCCURRING OR MANUFACTURED STONE MATERIAL CONFORMING TO ASTM C33 FOR STONE QUALITY AND MEETING THE FOLLOWING GRADATION SPECIFICATION.

SIEVE SIZE	PERCENT RETAINED BY WEIGHT
1/2"	0
3/8"	0-2
#4	40-85
#10	95-100

20. THE CONTRACTOR IS HEREBY NOTIFIED THAT CONNECTING TO, SHUTTING DOWN, OR TERMINATING EXISTING UTILITY LINES, MAY HAVE TO OCCUR AT OFF-PEAK HOURS. SUCH HOURS ARE USUALLY OUTSIDE NORMAL WORKING HOURS AND POSSIBLY BETWEEN 12 A.M. AND 6 A.M. "ANY WATER SHUTDOWN OR TIE-IN MUST BE SCHEDULED TEN (10) DAYS IN ADVANCE"
21. ALL WASTEWATER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) REGULATIONS, 30 TAC CHAPTER 213 AND 290, AS APPLICABLE. WHENEVER TCEQ AND CITY OF ROUND ROCK SPECIFICATIONS CONFLICT, THE MORE STRINGENT SHALL APPLY.

TRAFFIC MARKING NOTES:

1. ANY METHODS, STREET MARKINGS AND SIGNAGE NECESSARY FOR WARNING MOTORISTS, WARNING PEDESTRIANS OR DIVERTING TRAFFIC DURING CONSTRUCTION SHALL CONFORM TO THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, LATEST EDITION.
2. ALL PAVEMENT MARKINGS, MARKERS, PAINT, TRAFFIC BUTTONS, TRAFFIC CONTROLS AND SIGNS SHALL BE INSTALLED IN ACCORDANCE WITH THE TEXAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND BRIDGES AND, THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, LATEST EDITIONS.

EROSION AND SEDIMENTATION CONTROL NOTES:

1. EROSION CONTROL MEASURES, SITE WORK AND RESTORATION WORK SHALL BE IN ACCORDANCE WITH THE CITY OF ROUND ROCK EROSION AND SEDIMENTATION CONTROL ORDINANCE.
2. ALL SLOPES SHALL BE SODDED OR SEEDED WITH APPROVED GRASS, GRASS MIXTURES OR GROUND COVER SUITABLE TO THE AREA AND SEASON IN WHICH THEY ARE APPLIED.
3. SILT FENCES, ROCK BERMS, SEDIMENTATION BASINS AND SIMILARLY RECOGNIZED TECHNIQUES AND MATERIALS SHALL BE EMPLOYED DURING CONSTRUCTION TO PREVENT POINT SOURCE SEDIMENTATION LOADING OF DOWNSTREAM FACILITIES. SUCH INSTALLATION SHALL BE REGULARLY INSPECTED BY THE CITY OF ROUND ROCK FOR EFFECTIVENESS. ADDITIONAL MEASURES MAY BE REQUIRED IF, IN THE OPINION OF THE CITY ENGINEER, THEY ARE WARRANTED.
4. ALL TEMPORARY EROSION CONTROL MEASURES SHALL NOT BE REMOVED UNTIL FINAL INSPECTION AND APPROVAL OF THE PROJECT BY THE ENGINEER. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL TEMPORARY EROSION CONTROL STRUCTURES AND TO REMOVE EACH STRUCTURE AS APPROVED BY THE ENGINEER.
5. ALL MUD, DIRT, ROCKS, DEBRIS, ETC., SPILLED, TRACKED OR OTHERWISE DEPOSITED ON EXISTING PAVED STREETS, DRIVES AND AREAS USED BY THE PUBLIC SHALL BE CLEANED UP IMMEDIATELY.
6. ONCE REVEGETATION REQUIREMENTS HAVE BEEN MET, ALL TEMPORARY SEDIMENT CONTROLS (E.G. SILT FENCE, ROCK BERMS, INLET PROTECTION, ETC.) SHALL BE REMOVED FROM THE SITE AND DISPOSED. ANY DISTURBED AREAS SHALL BE CLEANED OF DIRT AND DEBRIS AND PROPERLY RAKED AND GRADED.

TREE PROTECTION NOTES:

1. ALL TREES NOT LOCATED WITHIN THE LIMITS OF CONSTRUCTION AND OUTSIDE OF DISTURBED AREAS SHALL BE PRESERVED. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL TREES TO BE PRESERVED FROM HIS ACTIVITIES.
2. ALL TREES SHOWN TO BE RETAINED WITHIN THE LIMITS OF CONSTRUCTION ON THE PLANS, SHALL BE PROTECTED DURING CONSTRUCTION WITH FENCING. SEE: TREE PROTECTION TREE WELLS (EC-06), TREE PROTECTION TREE LOCATION (EC-07) AND TREE PROTECTION FENCE-CHAIN LINK (EC-08).
3. TREE PROTECTION FENCES SHALL BE ERECTED ACCORDING TO CITY STANDARDS FOR TREE PROTECTION, INCLUDING TYPES OF FENCING AND SIGNAGE.
4. TREE PROTECTION FENCES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY SITE PREPARATION WORK (CLEARING, GRUBBING, OR GRADING) AND SHALL BE MAINTAINED THROUGHOUT ALL PHASES OF THE CONSTRUCTION PROJECT.
5. EROSION AND SEDIMENTATION CONTROL BARRIERS SHALL BE INSTALLED OR MAINTAINED IN A MANNER WHICH DOES NOT RESULT IN SOIL BUILD-UP WITHIN TREE DRIPLINES.
6. FENCES SHALL COMPLETELY SURROUND THE TREE OR CLUSTERS OF TREES, LOCATED AT THE OUTERMOST LIMITS OF THE TREE BRANCHES (DRIPLINE) OR CRITICAL ROOT ZONE (CRZ), WHICHEVER IS GREATER; AND SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PROJECT IN ORDER TO PREVENT THE FOLLOWING:
   - 6.1. SOIL COMPACTION IN CRZ AREA RESULTING FROM VEHICULAR TRAFFIC OR STORAGE OF EQUIPMENT OR MATERIAL.
   - 6.2. CRZ DISTURBANCES DUE TO GRADE CHANGES OR TRENCHING NOT REVIEWED AND UTHORIZED BY THE FORESTRY MANAGER.
   - 6.3. WOUNDS TO EXPOSED ROOTS, TRUNK, OR LIMBS BY MECHANICAL EQUIPMENT
   - 6.4. OTHER ACTIVITIES DETRIMENTAL TO TREES SUCH AS CHEMICAL STORAGE, CONCRETE TRUCK CLEANING, AND FIRES.
7. EXCEPTIONS TO INSTALLING TREE FENCES AT THE TREE DRIPLINES OR CRZ, WHICHEVER IS GREATER, MAY BE PERMITTED IN THE FOLLOWING CASES:
   - 7.1. WHERE THERE IS TO BE AN APPROVED GRADE CHANGE, IMPERMEABLE PAVING SURFACE, OR TREE WELL;
   - 7.2. HERE PERMEABLE PAVING IS TO BE INSTALLED, ERECT THE FENCE AT THE OUTER LIMITS OF THE PERMEABLE PAVING AREA.
   - 7.3. HERE TREES ARE CLOSE TO PROPOSED BUILDINGS, ERECT THE FENCE NO CLOSER THAN 6 FEET TO THE BUILDING.
   - 7.4. HERE THERE ARE SEVERE SPACE CONSTRAINTS DUE TO TRACT SIZE, OR OTHER SPECIAL REQUIREMENTS, CONTACT THE FORESTRY MANAGER TO DISCUSS ALTERNATIVES.
8. HERE ANY OF THE ABOVE EXCEPTIONS RESULT IN A FENCE THAT IS CLOSER THAN 5 FEET TO A TREE TRUNK, THE TRUNK SHALL BE PROTECTED BY STRAPPED-ON PLANKING TO A HEIGHT OF 8 FEET (OR TO THE LIMITS OF LOWER BRANCHING) IN ADDITION TO THE REDUCED FENCING PROVIDED.
9. WHERE ANY OF THE ABOVE EXCEPTIONS RESULT IN AREAS OF UNPROTECTED ROOT ZONES UNDER THE DRIPLINE OR CRZ, WHICHEVER IS GREATER, THOSE AREAS SHOULD BE COVERED WITH 4 INCHES OF ORGANIC MULCH TO MINIMIZE SOIL COMPACTION.
10. ALL GRADING WITHIN CRZ AREAS SHALL BE DONE BY HAND OR WITH SMALL EQUIPMENT TO MINIMIZE ROOT DAMAGE. PRIOR TO GRADING, RELOCATE PROTECTIVE FENCING TO 2 FEET BEHIND THE GRADE CHANGE AREA.
11. ANY ROOTS EXPOSED BY CONSTRUCTION ACTIVITY SHALL BE PRUNED FLUSH WITH THE SOIL AND BACKFILLED WITH GOOD QUALITY TOP SOIL WITHIN TWO DAYS. IF EXPOSED ROOT AREAS CANNOT BE BACKFILLED WITHIN 2 DAYS, AN ORGANIC MATERIAL WHICH REDUCES SOIL TEMPERATURE AND MINIMIZES WATER LOSS DUE TO EVAPORATION SHALL BE PLACED TO COVER THE ROOTS UNTIL BACKFILL CAN OCCUR.
12. PRIOR TO EXCAVATION OR GRADE CUTTING WITHIN TREE DRIPLINES, A CLEAN CUT SHALL BE MADE WITH A ROCK SAW OR SIMILAR EQUIPMENT, IN A LOCATION AND TO A DEPTH APPROVED BY THE FORESTRY MANAGER, TO MINIMIZE DAMAGE TO REMAINING ROOTS.
13. TREES MOST HEAVILY IMPACTED BY CONSTRUCTION ACTIVITIES WILL BE WATERED DEEPLY ONCE A WEEK DURING PERIODS OF HOT, DRY WEATHER. TREE CROWNS ARE TO BE SPRAYED WITH WATER PERIODICALLY TO REDUCE DUST ACCUMULATION ON LEAVES.
14. WHEN INSTALLING CONCRETE ADJACENT TO THE ROOT ZONE OF A TREE, A PLASTIC VAPOR BARRIER SHALL BE PLACED BEHIND THE CONCRETE TO PROHIBIT LEACHING OF LIME INTO THE CRZ.
15. ANY TRENCHING REQUIRED FOR THE INSTALLATION OF LANDSCAPE IRRIGATION SHALL BE PLACED AS FAR FROM EXISTING TREE TRUNKS AS POSSIBLE.
16. NO LANDSCAPE TOPSOIL DRESSING GREATER THAN FOUR (4) INCHES SHALL BE PERMITTED WITHIN THE DRIPLINE OR CRZ OF TREES, WHICHEVER IS GREATER. NO TOPSOIL IS PERMITTED ON ROOT FLARES OF ANY TREE.
17. PRUNING TO PROVIDE CLEARANCE FOR STRUCTURES, VEHICULAR TRAFFIC, AND CONSTRUCTION EQUIPMENT SHALL TAKE PLACE BEFORE CONSTRUCTION BEGINS. ALL PRUNING MUST BE DONE ACCORDING TO CITY STANDARDS AND AS OUTLINED IN LITERATURE PROVIDED BY THE INTERNATIONAL SOCIETY OF ARBORICULTURE (ISA PRUNING TECHNIQUES).
18. ALL OAK TREE CUTS, INTENTIONAL OR UNINTENTIONAL, SHALL BE SEALED WITH AN APPROVED PRUNING SEALER IMMEDIATELY (WITHIN 10 MINUTES). TREE PAINT MUST BE KEPT ON SITE AT ALL TIMES.
19. THE FORESTRY MANAGER HAS THE AUTHORITY TO REQUIRE ADDITIONAL TREE PROTECTION BEFORE OR DURING CONSTRUCTION.
20. TREES APPROVED FOR REMOVAL SHALL BE REMOVED IN A MANNER WHICH DOES NOT IMPACT TREES TO BE PRESERVED. REFER TO THE CITY OF ROUND ROUND ROCK TREE TECHNICAL MANUAL FOR APPROPRIATE REMOVAL METHODS.
21. PRIOR TO CONSTRUCTION, ALL LOWER TREE LIMBS OVER ROADWAYS MUST BE PRUNED TO A HEIGHT OF 14 FEET USING THE TECHNIQUES DESCRIBED IN THE CITY OF ROUND ROCK TREE TECHNICAL MANUAL.
22. DEVIATIONS FROM THE ABOVE REQUIREMENTS AND NEGLIGENT DAMAGE TO TREES MAY BE CONSIDERED AS ORDINANCE VIOLATIONS.

SEQUENCE OF CONSTRUCTION:

A. INSTALL EROSION CONTROLS .
B. INSTALL TREE PROTECTION AS NOTED ON APPROVED SITE PLAN.
C. SCHEDULE PRE CONSTRUCTION MEETING WITH THE CITY OF ROUND ROCK INSPECTION DEPT., CONTRACTOR, UTILITY CONTRACTOR, AND ENGINEER. 512-218-6607.
D. EVALUATION OF TEMPORARY EROSION CONTROL INSTALLATION. REVIEW CONSTRUCTION SCHEDULE AND THE EROSION CONTROL PLAN.
E. BEGIN SITE CLEARING AND STRIPPING.
F. GRADE SITE. INSPECT AND MAINTAIN ALL CONTROLS AS PER GENERAL NOTES.
G. CONSTRUCT SITE UTILITIES.
H. CONSTRUCT PAVING, PARKING AND BUILDINGS.
I. COMPLETE CONSTRUCTION AND INSTALL LANDSCAPING.
J. PROVIDE AS-BUILTS TO ENGINEER.
K. REVEGETATE DISTURBED AREAS OR COMPLETE A DEVELOPERS CONTRACT FOR THE RE-VEGETATION ALONG WITH THE ENGINEERS CONCURRENCE LETTER.
L. PROJECT ENGINEER INSPECTS JOB AND WRITES CONCURRENCE LETTER TO THE CITY, FINAL INSPECTION IS SCHEDULED UPON RECEIPT OF THE LETTER
M. RECEIVE CITY CLEARANCE FOR OCCUPANCY.
N. REMOVE TEMPORARY EROSION/SEDIMENTATION CONTROLS.

LEGEND

IRON ROD FOUND/SET
CONCRETE MONUMENT FOUND/SET
NAIL FOUND/SET
PIPE FOUND
STORMWATER MANHOLE (DRAWN TO SCALE)
JUNCTION BOX (DRAWN TO SCALE)
GRATE INLET (DRAWN TO SCALE)
WASTEWATER MANHOLE (DRAWN TO SCALE)
EX. CO — WASTEWATER CLEANOUT
GAS TEST STATION
GAS METER
ELECTRIC METER
LIGHT POLE
SIGNAL LIGHT POLE
UTILITY POLE
TELEPHONE MANHOLE
EX. FH — FIRE HYDRANT
EX. WV — GATE VALVE
EX. ICV — IRRIGATION CONTROL VALVE
WATER METER
100 / 99 — EXISTING CONTOURS
100 — CONTOUR
CURB AND GUTTER
ASPHALT
X" GAS LINE — X" DIA. GAS LINE
X" STORM SEWER LINE — X" DIA. STORM SEWER LINE
X" WASTEWATER LINE — X" DIA. WASTEWATER LINE
X" WATER LINE — X" DIA. WATER LINE
EXISTING CHAIN LINK FENCE
EXISTING WIRE FENCE
EXISTING WOOD FENCE
SB — SETBACK LINE
EASEMENT LINE
EXISTING ASPHALT
OHE — EXISTING OVERHEAD ELECTRIC LINE
UGE — EXISTING UNDERGROUND ELECTRIC LINE
OHT — EXISTING OVERHEAD TELEPHONE LINE
UGT — EXISTING UNDERGROUND TELEPHONE LINE
W — EXISTING WATER LINE (SIZE VARIES)
WW — EXISTING WASTEWATER LINE (SIZE VARIES)
FM — EXISTING FORCE MAIN (SIZE VARIES)
FOC — EXISTING FIBER OPTIC LINE
GAS — EXISTING GAS LINE (SIZE VARIES)
BENCHMARK LOCATION
EXISTING TREE TO REMAIN (SIZE VARIES)
EXISTING TREE TO BE REMOVED (SIZE VARIES)
MONARCH/HERITAGE TREE (SIZE VARIES)
7 — PARKING COUNT
PARCEL LINES
HC — HANDICAP ROUTE

CITY OF ROUND ROCK PUBLIC IMPROVEMENT SUMMARY TABLES

PIPE SIZE	WATER		
	TYPE	LENGTH (LF)	VOL (GAL)
6"	DI	447	657.1017
8"	C900 PVC	3686.5700	9626.0095

FIRE HYDRANTS		
TOTAL		BRAND
14		

VALVES		
SIZE	TOTAL	BRAND
8"	20	
6"	14	
4"		

PIPE SIZE	WASTEWATER		
	TYPE	LENGTH (LF)	VOL (GAL)
6"	SDR26	1212.1600	
0'-8"	SDR26	430.2000	

SIDEWALK	
TOTAL	LF
4'	
5'	1342

WASTEWATER MANHOLES	
SIZE	QTY
4'	12
5'	0
6'	0

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Seal:

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11.04.2022

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STATE OF TEXAS
TERRY R. HAGOOD
52960
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY TERRY R. HAGOOD, P.E. 52960
THIS DRAWING MAY NOT BE MODIFIED WITHOUT THE EXPRESS WRITTEN CONSENT OF THE ENGINEER, AND THEN ONLY IN ACCORDANCE WITH THE RULES OF THE TEXAS ENGINEERING PRACTICE ACT.

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DATE SIGNED: 4/30/2023
ISSUED FOR: AGENCY REVIEW

J:\2013\13-076a Burke CC lot J\11.0 Drawings\burke logo.jpg

. Eagles Nest 3
Lot KE - Bldgs. 6-9

3259 Eagles Nest St.
Round Rock, Texas,
78665

Issue

1	09.23.2022	50% CD - Pricing
2	11.04.2022	95% CD
3	12.05.2022	CORR/TCEQ
4	4.30.2023	TCEQ UPDATE

Project Number: 22-019g
Drawn By: JSR
Checked By: RB

GENERAL NOTES

C00

15

SDP2208-0002

13-018.2C00, 4/30/2023 1:23:14 PM, TerryH

TCEQ WPAP NOTES

(REV. 7/15/15)
TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
WATER POLLUTION ABATEMENT PLAN
GENERAL CONSTRUCTION NOTES

1. A WRITTEN NOTICE OF CONSTRUCTION MUST BE SUBMITTED TO THE TCEQ REGIONAL OFFICE AT LEAST 48 HOURS PRIOR TO THE START OF ANY REGULATED ACTIVITIES. THIS NOTICE MUST INCLUDE:
   - THE NAME OF THE APPROVED PROJECT;
   - THE ACTIVITY START DATE; AND
   - THE CONTACT INFORMATION OF THE PRIME CONTRACTOR.

2. ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROJECT MUST BE PROVIDED WITH COMPLETE COPIES OF THE APPROVED WATER POLLUTION ABATEMENT PLAN (WPAP) AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL. DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTORS ARE REQUIRED TO KEEP ON-SITE COPIES OF THE APPROVED PLAN AND APPROVAL LETTER.

3. IF ANY SENSITIVE FEATURE(S) (CAVES, SOLUTION CAVITY, SINK HOLE, ETC.) IS DISCOVERED DURING CONSTRUCTION, ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY. THE APPROPRIATE TCEQ REGIONAL OFFICE MUST BE IMMEDIATELY NOTIFIED OF ANY SENSITIVE FEATURES ENCOUNTERED DURING CONSTRUCTION. CONSTRUCTION ACTIVITIES MAY NOT BE RESUMED UNTIL THE TCEQ HAS REVIEWED AND APPROVED THE APPROPRIATE PROTECTIVE MEASURES IN ORDER TO PROTECT ANY SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY.

4. NO TEMPORARY OR PERMANENT HAZARDOUS SUBSTANCE STORAGE TANK SHALL BE INSTALLED WITHIN 150 FEET OF A WATER SUPPLY SOURCE, DISTRIBUTION SYSTEM, WELL, OR SENSITIVE FEATURE.

5. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED PLANS AND MANUFACTURERS SPECIFICATIONS. IF INSPECTIONS INDICATE A CONTROL HAS BEEN USED INAPPROPRIATELY, OR INCORRECTLY, THE APPLICANT MUST REPLACE OR MODIFY THE CONTROL FOR SITE SITUATIONS. THESE CONTROLS MUST REMAIN IN PLACE UNTIL THE DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.

6. ANY SEDIMENT THAT ESCAPES THE CONSTRUCTION SITE MUST BE COLLECTED AND PROPERLY DISPOSED OF BEFORE THE NEXT RAIN EVENT TO ENSURE IT IS NOT WASHED INTO SURFACE STREAMS, SENSITIVE FEATURES, ETC.

7. SEDIMENT MUST BE REMOVED FROM THE SEDIMENT TRAPS OR SEDIMENTATION BASINS NOT LATER THAN TCEQ-0592 WHEN IT OCCUPIES 50% OF THE BASIN'S DESIGN CAPACITY.

8. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORMWATER SHALL BE PREVENTED FROM BEING DISCHARGED OFFSITE.

9. ALL SPOILS (EXCAVATED MATERIAL) GENERATED FROM THE PROJECT SITE MUST BE STORED ON-SITE WITH PROPER E&S CONTROLS. FOR STORAGE OR DISPOSAL OF SPOILS AT ANOTHER SITE ON THE EDWARDS AQUIFER RECHARGE ZONE, THE OWNER OF THE SITE MUST RECEIVE APPROVAL OF A WATER POLLUTION ABATEMENT PLAN FOR THE PLACEMENT OF FILL MATERIAL OR MASS GRADING PRIOR TO THE PLACEMENT OF SPOILS AT THE OTHER SITE.

10. IF PORTIONS OF THE SITE WILL HAVE A TEMPORARY OR PERMANENT CEASE IN CONSTRUCTION ACTIVITY LASTING LONGER THAN 14 DAYS, SOIL STABILIZATION IN THOSE AREAS SHALL BE INITIATED AS SOON AS POSSIBLE PRIOR TO THE 14TH DAY OF INACTIVITY. IF ACTIVITY WILL RESUME PRIOR TO THE 21ST DAY, STABILIZATION MEASURES ARE NOT REQUIRED. IF DROUGHT CONDITIONS OR INCLEMENT WEATHER PREVENT ACTION BY THE 14TH DAY, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS POSSIBLE.

11. THE FOLLOWING RECORDS SHALL BE MAINTAINED AND MADE AVAILABLE TO THE TCEQ UPON REQUEST:
   - THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR;
   - THE DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE; AND
   - THE DATES WHEN STABILIZATION MEASURES ARE INITIATED.

12. THE HOLDER OF ANY APPROVED EDWARD AQUIFER PROTECTION PLAN MUST NOTIFY THE APPROPRIATE REGIONAL OFFICE IN WRITING AND OBTAIN APPROVAL FROM THE EXECUTIVE DIRECTOR PRIOR TO INITIATING ANY OF THE FOLLOWING:
   A. ANY PHYSICAL OR OPERATIONAL MODIFICATION OF ANY WATER POLLUTION ABATEMENT STRUCTURE(S), INCLUDING BUT NOT LIMITED TO PONDS, DAMS, BERMS, SEWAGE TREATMENT PLANTS, AND DIVERSIONARY STRUCTURES;
   B. ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED OR A CHANGE WHICH WOULD SIGNIFICANTLY IMPACT THE ABILITY OF THE PLAN TO PREVENT POLLUTION OF THE EDWARDS AQUIFER;
   C. ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED AS UNDEVELOPED IN THE ORIGINAL WATER POLLUTION ABATEMENT PLAN.

AUSTIN REGIONAL OFFICE 12100 PARK 35 CIRCLE, BLDG. A AUSTIN, TEXAS 78753 PHONE (512) 339-2929 FAX (512) 339-3795	SAN ANTONIO REGIONAL OFFICE 14250 JUDSON ROAD SAN ANTONIO, TEXAS 78233-4480 PHONE (210) 490-3096 FAX (210) 545-4329

TCEQ SCS NOTES

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
ORGANIZED SEWAGE COLLECTION SYSTEM
GENERAL CONSTRUCTION NOTES

1. This Organized Sewage Collection System (SCS) must be constructed in accordance with the Texas Commission on Environmental Quality's (TCEQ) Edwards Aquifer Rules 30 Texas Administrative Code (TAC) §§213.5(c), the Texas Commission on Environmental Quality's (TCEQ) Edwards Aquifer Rules and any local government standard specifications..

2. All contractors conducting regulated activities associated with this proposed regulated project must be provided with copies of the Sewage Collection System plan and the TCEQ letter indicating the specific conditions of its approval. During the course of these regulated activities, the contractors must be required to keep on-site copies of the plan and the approval letter.

3. A written notice of construction must be submitted to the presiding TCEQ regional office at least 48 hours prior to the start of any regulated activities. This notice must included:
   - the name of the approved project;
   - the activity start date; and
   - the contact information of the prime contractor

4. Any modification to the activities described in the referenced SCS application following the date of approval may require the submittal of an SCS application to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval.

5. Prior to beginning any construction activity, all temporary erosion and sedimentation (E&S) controls must be properly installed and maintained in accordance with the manufactures specifications. these controls must remain in place until the disturbed areas has been permanently stabilized.

6. If any sensitive features are discovered during the wastewater line trenching activities, all regulated activities near the sensitive feature must be suspended immediately. The applicant must immediately notify the appropriate regional office of the TCEQ of the feature discovered. A geologist's assessment of the location and extent of the features discovered must be reported to the regional office in writing and the applicant must submit a plane for ensuring the structural integrity of the sewer line or for modifying the proposed collection system alignment around the feature. The regulated activities near the sensitive feature may not proceed until the executive director has reviewed and approve the methods proposed to protect the sensitive feature and the Edwards Aquifer from any potentially adverse impacts to water quality while maintaining the structural integrity of the line.

7. Sewer lines located within or crossing the 5-year floodplain of a drainage way will be protected from inundation and stream velocities which could cause erosion and scouring of backfill. The trench must be capped with concrete to prevent scouring of backfill, or the sewer lines must be encased in concrete. All concrete shall have a minimum thickness of 6 inches.

8. Blasting procedures for protection of existing sewer lines and other utilities will be in accordance with the national Fire Protection Association criteria. Sand is not allowed as bedding or backfill in trenches that have been blasted. If any existing sewer lines are damaged, the lines must be repaired and retested.

9. All manholes constructed or rehabilitated on this project must have watertight size on size resilient connectors allowing for differential settlement. If manholes are constructed within the 100-year floodplain, the cover must have a gasket and be bolted to the ring. Where gasketed manhole covers are required for more than three manholes in sequence or for more than 1500 feet, alternate means of venting will be provided. Bricks are not an acceptable construction material for any portion of the manhole.

The diameter of the manholes must be a minimum of four feet and the manhole for entry must have a minimum clear opening diameter of 30 inches. These dimensions and other details showing compliance with the commission's rules concerning manholes and sewer line/manhole inverts described in 30 TAC §217.55 are included on Plan Sheet ___ of ___.

It is suggested that entrance into manholes in excess of four feet deep be accomplished by means of portable ladder. The inclusion of steps in a manhole is prohibited.

10. Where water lines and new sewer line are installed with a separation distance closer that nine feet (i.e., water lines crossing wastewater lines, water lines paralleling wastewater lines, or water lines next to manholes) the installation must meet the requirements of 30 TAC §217.53(d) (Pipe Design) and 30 TAC §290.44(e)(Water Distribution).

11. Where sewers lines deviate from straight alignment and uniform grade all curvature of sewer pipe must be achieved by the following procedure which is recommended by the pipe manufacturer:______________________.

If pipe flexure is proposed, the following method of preventing deflection of the joint must be used:______________________.

Specific care must be taken to ensure that the joint is placed in the center of the trench and properly bedded in accordance with 30 TAC §217.54.

12. New sewage collection system lines must be constructed with stub outs for the connection of anticipated extensions. The location of such stub outs must be marked on the ground such that their location can be easily determined at the time of connection of the extensions. Such stub outs must be manufactured wyes or tees that are compatible in size and material with both the sewer line and the extension. At the time of original construction, new stub-outs must be constructed sufficiently to extend beyond the end of the street pavement. All stub-outs must be sealed with a manufactured cap to prevent leakage. Extensions that were not anticipated at the time of original construction or that are to be connected to an existing sewer line not furnished with stub outs must be connected using a manufactured saddle and in accordance with accepted plumbing techniques.

If no stub-out is present an alternate method of joining laterals is shown in the detail on Plan Sheet __ of __. (For potential future laterals).

The private service lateral stub-outs must be installed as shown on the plan and profile sheets on Plan Sheet __ of __ and marked after backfilling as shown in the detail on plan Sheet __ to __.

13. Trenching, bedding and backfill must conform with 30 TAC §217.54. The bedding and backfill for flexible pipe must comply with the standards of ASTM D-2321, Classes IA, IB, II or III. Rigid pipe bedding must comply with the requirements of ASTM C 12 (ANSI A 106.2) classes A, B or C.

14. Sewer lines must be tested from manhole to manhole. When a new sewer line is connected to an existing stub or clean-out, it must be tested from existing manhole to new manhole. If a stub or clean-out is used at the end of the proposed sewer line, no private service attachments may be connected between the last manhole and the cleanout unless it can be certified as conforming with the provisions of 30 TAC §213.5(c)(3)(E).

15. All sewer lines must be tested in accordance with 30 TAC §217.57. The engineer must retain copies of all test results which must be made available to the executive director upon request. The engineer must certify in writing that all wastewater lines have passed all required testing to the appropriate regional office within 30 days of test completion and prior to use of the new collection system. Testing method will be:
(a) For a collection system pipe that will transport wastewater by gravity flow, the design must specify an infiltration and exfiltration test or a low-pressure air test. A test must conform to the following requirements:
(1) Low Pressure Air Test.
(A) A low pressure air test must follow the procedures described in American Society For Testing And Materials (ASTM) C-828, ASTM C-924, or ASTM F-1417 or other procedure approved by the executive director, except as to testing times as required in Table C.3 in subparagraph (C) of this paragraph or Equation C.3 in subparagraph (B)(ii) of this paragraph.
(B) For sections of collection system pipe less than 36 inch average inside diameter, the following procedure must apply, unless a pipe is to be tested as required by paragraph (2) of this subsection.
(i) A pipe must be pressurized to 3.5 pounds per square inch (psi) greater than the pressure exerted by groundwater above the pipe.
(ii) Once the pressure is stabilized, the minimum time allowable for the pressure to drop from 3.5 psi gauge to 2.5 psi gauge is computed from the following equation:

Equation C.3 $$T = \frac{0.085 x D x K}{Q}$$

Where:

T = time for pressure to drop 1.0 pound per square inch gauge in seconds
K = 0.000419 X D X L, but not less than 1.0
D = average inside pipe diameter in inches
L = length of line of same size being tested, in feet
Q = rate of loss, 0.0015 cubic feet per minute per square foot internal surface

(C) Since a K value of less than 1.0 may not be used, the minimum testing time for each pipe diameter is shown in the following Table C.3:

Pipe Diameter (inches)	Minimum Time (seconds)	Maximum Length for Minimum Time (feet)	Time for Longer length (seconds/feet)
6	340	398	0.855
8	454	298	1.520
10	567	239	2.374
12	680	199	3.419
15	850	159	5.342
18	1020	133	7.693
21	1190	114	10.471
24	1360	100	13.676
27	1530	88	17.309
30	1700	80	21.369
33	1870	72	25.856

(D) An owner may stop a test if no pressure loss has occurred during the first 25% of the calculated testing time.
(E) If any pressure loss or leakage has occurred during the first 25% of a testing period, then the test must continue for the entire test duration as outlined above or until failure.
(F) Wastewater collection system pipes with a 27 inch or larger average inside diameter may be air tested at each joint instead of following the procedure outlined in this section.
(G) A testing procedure for pipe with an inside diameter greater than 33 inches must be approved by the executive director.
(2) Infiltration/Exfiltration Test.
(A) The total exfiltration, as determined by a hydrostatic head test, must not exceed 50 gallons per inch of diameter per mile of pipe per 24 hours at a minimum test head of 2.0 feet above the crown of a pipe at an upstream manhole.
(B) An owner shall use an infiltration test in lieu of an exfiltration test when pipes are installed below the groundwater level.
(C) The total exfiltration, as determined by a hydrostatic head test, must not exceed 50 gallons per inch diameter per mile of pipe per 24 hours at a minimum test head of two feet above the crown of a pipe at an upstream manhole, or at least two feet above existing groundwater level, whichever is greater.
(D) For construction within a 25-year flood plain, the infiltration or exfiltration must not exceed 10 gallons per inch diameter per mile of pipe per 24 hours at the same minimum test head as in subpargraph (C) of this paragraph.
(E) If the quantity of infiltration or exfiltration exceeds the maximum quantity specified, an owner shall undertake remedial action in order to reduce the infiltration or exfiltration to an amount within the limits specified. An owner shall retest a pipe following a remediation action.
(b) If a gravity collection pipe is composed of flexible pipe, deflection testing is also required. The following procedures must be followed:

(1) For a collection pipe with inside diameter less than 27 inches, deflection measurement requires a rigid mandrel.
(A) Mandrel Sizing.
(i) A rigid mandrel must have an outside diameter (OD) not less than 95% of the base inside diameter (ID) or average ID of a pipe, as specified in the appropriate standard by the ASTMs, American Water Works Association, UNI-BELL, or American National Standards Institute, or any related appendix.
(ii) If a mandrel sizing diameter is not specified in the appropriate standard, the mandrel must have an OD equal to 95% of the ID of a pipe. In this case, the ID of the pipe, for the purpose of determining the OD of the mandrel, must equal be the average outside diameter minus two minimum wall thicknesses for OD controlled pipe and the average inside diameter for ID controlled pipe.
(iii) All dimensions must meet the appropriate standard.
(B) Mandrel Design.
(i) A rigid mandrel must be constructed of a metal or a rigid plastic material that can withstand 200 psi without being deformed.
(ii) A mandrel must have nine or more odd number of runners or legs.
(iii) A barrel section length must equal at least 75% of the inside diameter of a pipe.
(iv) Each size mandrel must use a separate proving ring.
(C) Method Options.
(i) An adjustable or flexible mandrel is prohibited.
(ii) A test may not use television inspection as a substitute for a deflection test.
(iii) If requested, the executive director may approve the use of a deflectometer or a mandrel with removable legs or runners on a case-by-case basis.
(2) For a gravity collection system pipe with an inside diameter 27 inches and greater, other test methods may be used to determine vertical deflection.
(3) A deflection test method must be accurate to within plus or minus 0.2% deflection.
(4) An owner shall not conduct a deflection test until at least 30 days after the final backfill.
(5) Gravity collection system pipe deflection must not exceed five percent (5%).
(6) If a pipe section fails a deflection test, an owner shall correct the problem and conduct a second test after the final backfill has been in place at least 30 days.

16. All manholes must be tested to meet or exceed the requirements of 30 TAC §217.58.
(a) All manholes must pass a leakage test.
(b) An owner shall test each manhole (after assembly and backfilling) for leakage, separate and independent of the collection system pipes, by hydrostatic exfiltration testing, vacuum testing, or other method approved by the executive director.
(1) Hydrostatic Testing
(A) The maximum leakage for hydrostatic testing or any alternative test methods is 0.025 gallons per foot diameter per foot of manhole depth per hour.
(B) No grout must be placed in horizontal joints before testing.
(C) Stub-outs, manhole boots, and pipe plugs must be secured to prevent movement while a vacuum is drawn.
(D) An owner shall use a minimum 60 inch/lb torque wrench to tighten the external clamps that secure a test cover to the top of a manhole.
(E) A test head must be placed at the inside of the top of a cone section, and the seal inflated in accordance with the manufacturer's recommendations.
(F) there must be a vacuum of 10 inches of mercury inside a manhole to perform a valid test.
(G) A test does not begin until after the vacuum pump is off
(H) A manhole passes the test if after 2.0 minutes and with all valves closed, the vacuum is at least 9.0 inches of mercury.

17. All private service laterals must be inspected and certified in accordance with 30 TAC §213.5(c)(3)(I). After installation of and, prior to covering and connecting a private service lateral to an existing organized sewage collection system, a Texas Licensed Professional Engineer, Texas Registered Sanitarian, or appropriate city inspector must visually inspect the private service lateral and the connection to the sewage collection system, and certify that it is constructed in conformity with the applicable provisions of this section. The owner of the collection system must maintain such certifications for five years and forward copies to the appropriate regional office upon request. Connections may only be made to an approved sewage collection system.

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11.04.2022

STATE OF TEXAS
TERRY R. HAGOOD
52960
REGISTERED
PROFESSIONAL ENGINEER

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TBPE Reg. No. F-12709

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J:\2013\13-076a Burke CC lot J\11.0 Drawings\burke logo.jpg

. Eagles Nest 3
Lot KE - Bldgs. 6-9
3259 Eagles Nest St.
Round Rock, Texas,
78665

Issue

1	09.23.2022	50% CD - Pricing
2	11.04.2022	95% CD
3	12.05.2022	CORR/TCEQ
4	4.30.2023	TCEQ UPDATE

Project Number: 22-019g
Drawn By: JSR
Checked By: RB

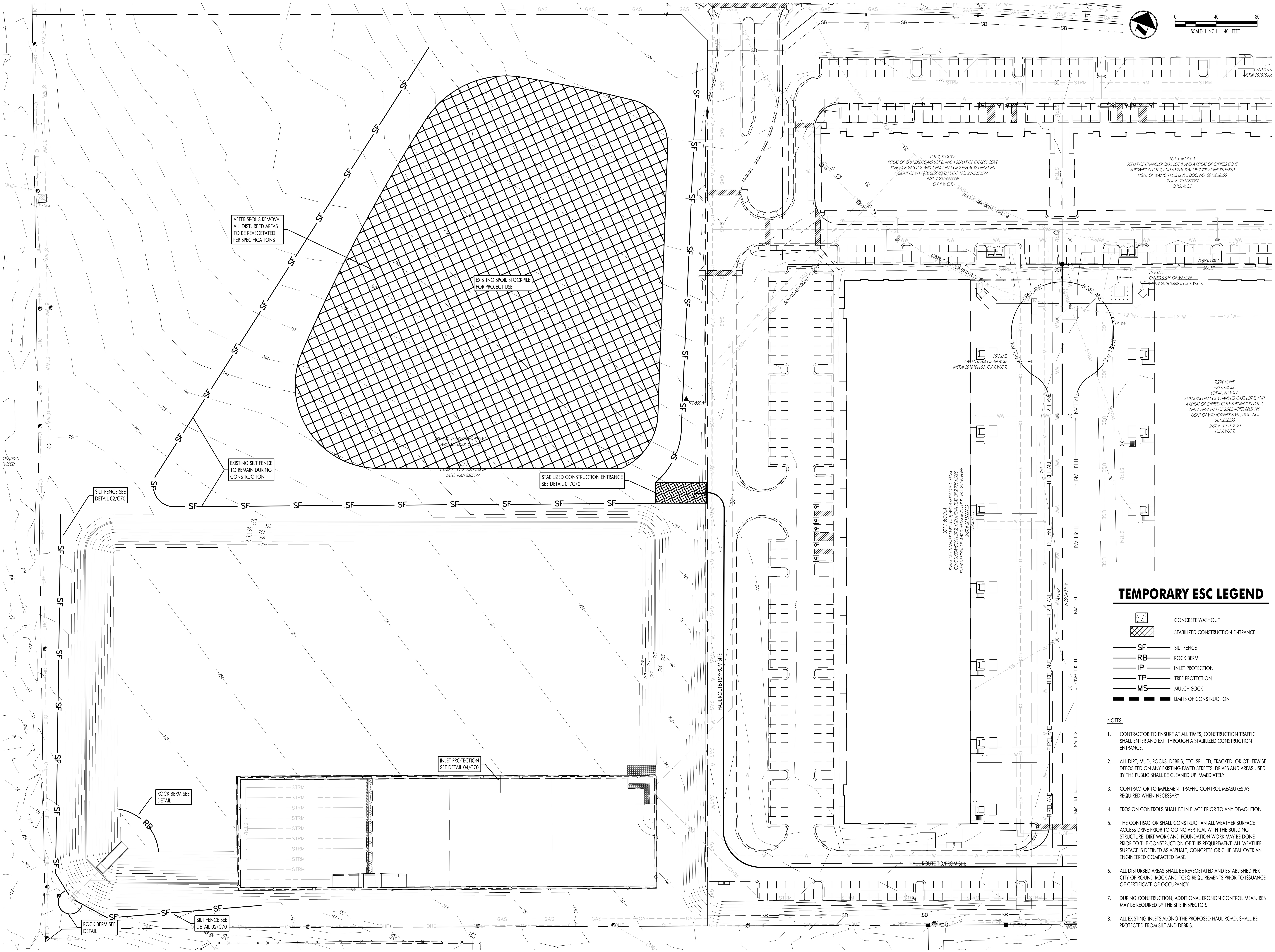
TCEQ NOTES

C01

16

SDP2208-0002

13-018.2C01, 4/30/2023 12:23:24 PM, TerryH



TEMPORARY ESC LEGEND

Symbol	Description
(hatched square)	CONCRETE WASHOUT
(cross-hatched square)	STABILIZED CONSTRUCTION ENTRANCE
—SF—	SILT FENCE
—RB—	ROCK BERM
—IP—	INLET PROTECTION
—TP—	TREE PROTECTION
—MS—	MULCH SOCK
— — —	LIMITS OF CONSTRUCTION

NOTES:

1. CONTRACTOR TO ENSURE AT ALL TIMES, CONSTRUCTION TRAFFIC SHALL ENTER AND EXIT THROUGH A STABILIZED CONSTRUCTION ENTRANCE.
2. ALL DIRT, MUD, ROCKS, DEBRIS, ETC. SPILLED, TRACKED, OR OTHERWISE DEPOSITED ON ANY EXISTING PAVED STREETS, DRIVES AND AREAS USED BY THE PUBLIC SHALL BE CLEANED UP IMMEDIATELY.
3. CONTRACTOR TO IMPLEMENT TRAFFIC CONTROL MEASURES AS REQUIRED WHEN NECESSARY.
4. EROSION CONTROLS SHALL BE IN PLACE PRIOR TO ANY DEMOLITION.
5. THE CONTRACTOR SHALL CONSTRUCT AN ALL WEATHER SURFACE ACCESS DRIVE PRIOR TO GOING VERTICAL WITH THE BUILDING STRUCTURE. DIRT WORK AND FOUNDATION WORK MAY BE DONE PRIOR TO THE CONSTRUCTION OF THIS REQUIREMENT. ALL WEATHER SURFACE IS DEFINED AS ASPHALT, CONCRETE OR CHIP SEAL OVER AN ENGINEERED COMPACTED BASE.
6. ALL DISTURBED AREAS SHALL BE REVEGETATED AND ESTABLISHED PER CITY OF ROUND ROCK AND TCEQ REQUIREMENTS PRIOR TO ISSUANCE OF CERTIFICATE OF OCCUPANCY.
7. DURING CONSTRUCTION, ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED BY THE SITE INSPECTOR.
8. ALL EXISTING INLETS ALONG THE PROPOSED HAUL ROAD, SHALL BE PROTECTED FROM SILT AND DEBRIS.

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Drawn By: JSR
Checked By: RB

EROSION AND SEDIMENTATION CONTROL PLAN

C10

17

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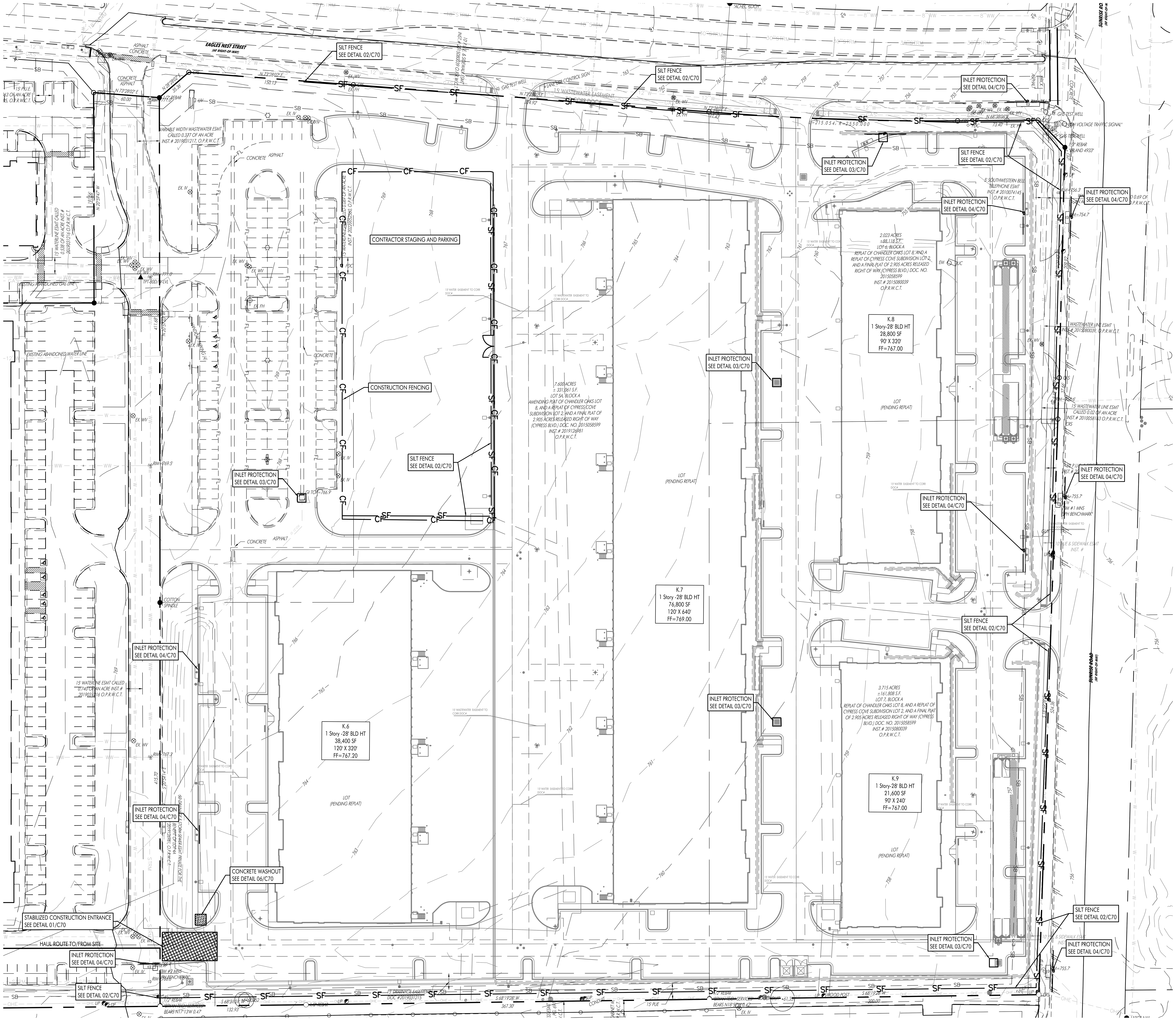
13-018.2C10, 4/30/2023 12:36 PM, TerryH



SCALE: 1 INCH = 40 FEET

TEMPORARY ESC LEGEND

- CONCRETE WASHOUT
- STABILIZED CONSTRUCTION ENTRANCE
- SF — SILT FENCE
- RB — ROCK BERM
- IP — INLET PROTECTION
- TP — TREE PROTECTION
- MS — MULCH SOCK
- LIMITS OF CONSTRUCTION

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Checked By: RB

EROSION AND SEDIMENTATION CONTROL PLAN

C11

18

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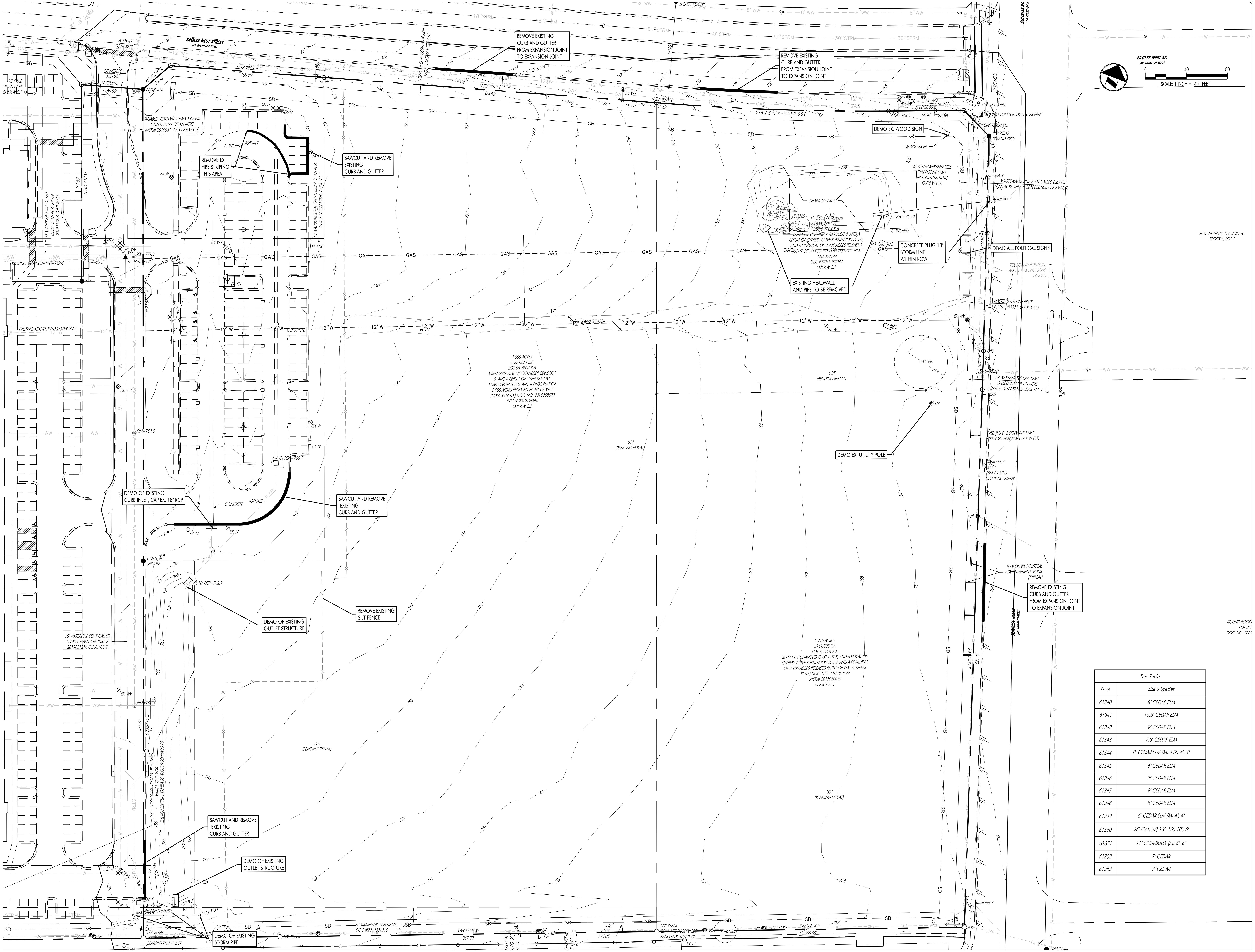
13-018.2C11, 4/30/2023 1:23:57 PM, TerryH



Tree Table	
Point	Size & Species
61340	8" CEDAR ELM
61341	10.5" CEDAR ELM
61342	9" CEDAR ELM
61343	7.5" CEDAR ELM
61344	8" CEDAR ELM (M) 4.5", 4", 3"
61345	6" CEDAR ELM
61346	7" CEDAR ELM
61347	9" CEDAR ELM
61348	8" CEDAR ELM
61349	6" CEDAR ELM (M) 4", 4"
61350	26" OAK (M) 13", 10", 10", 6"
61351	11" GUM-BULLY (M) 8", 6"
61352	7" CEDAR
61353	7" CEDAR

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DEMOLITION PLAN

C12

19

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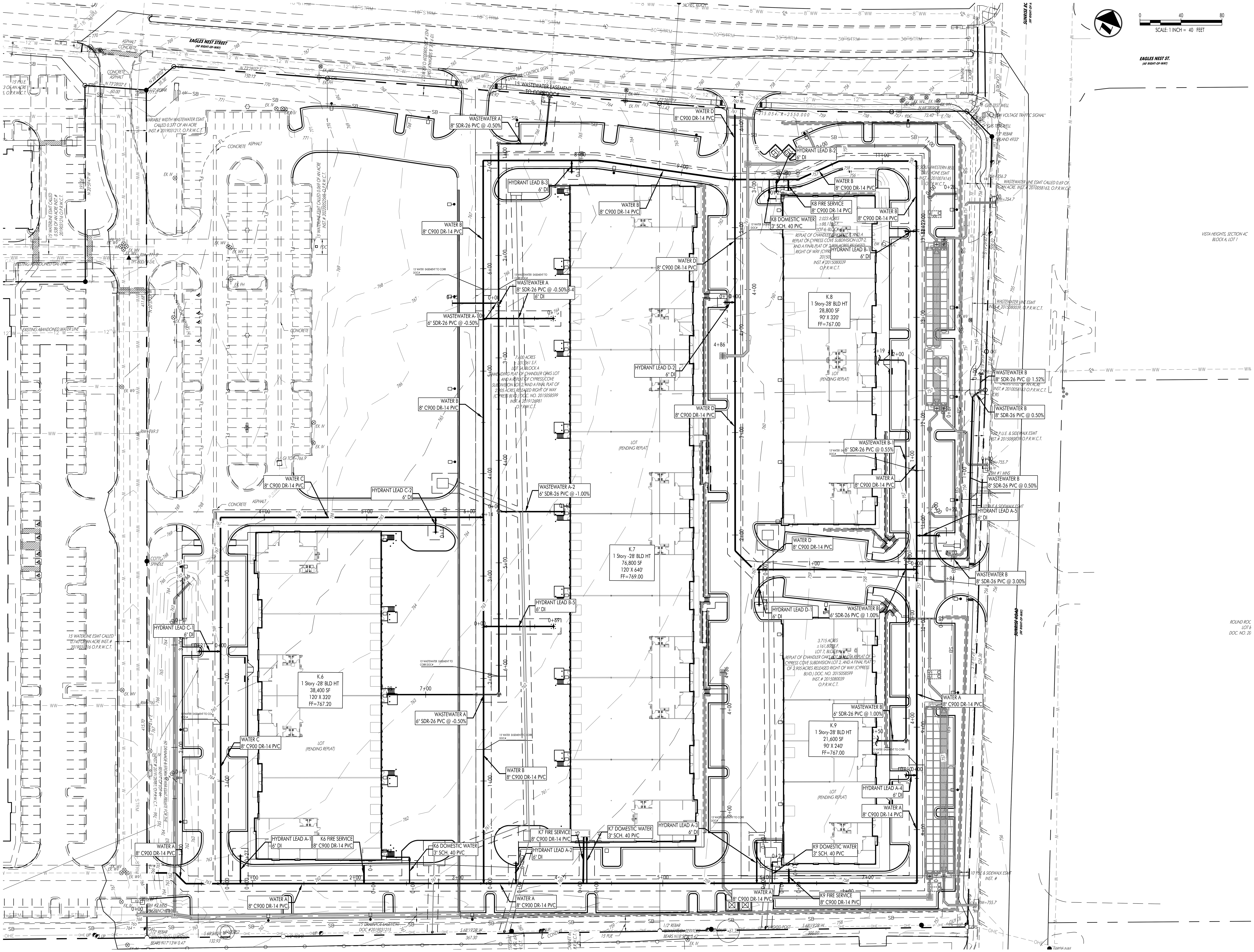
13-018.2C12, 4/30/2023 1:24:17 PM, TerryH



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OVERALL UTILITY PLAN

C20

20

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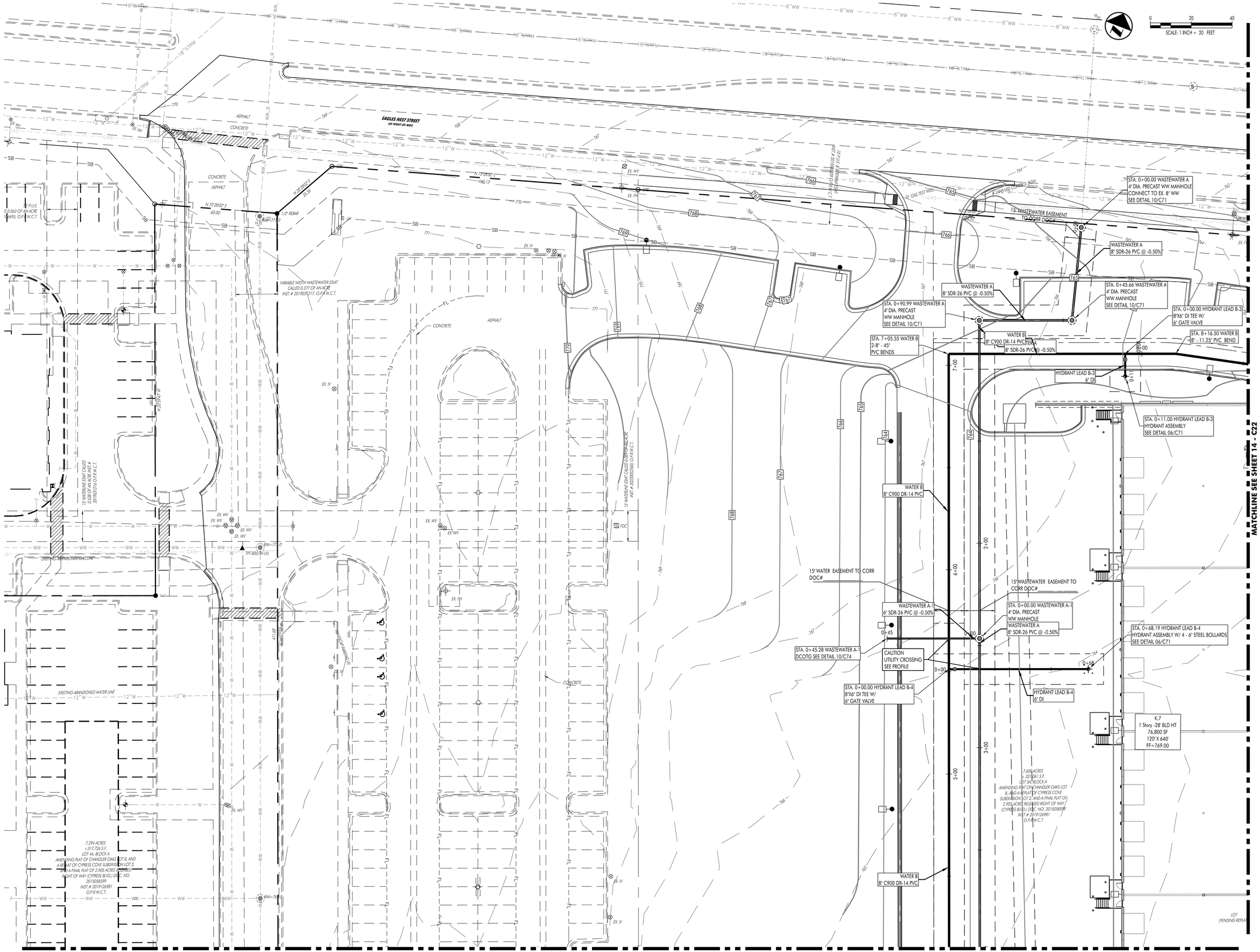

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Checked By: RB

UTILITY PLAN

C21

21

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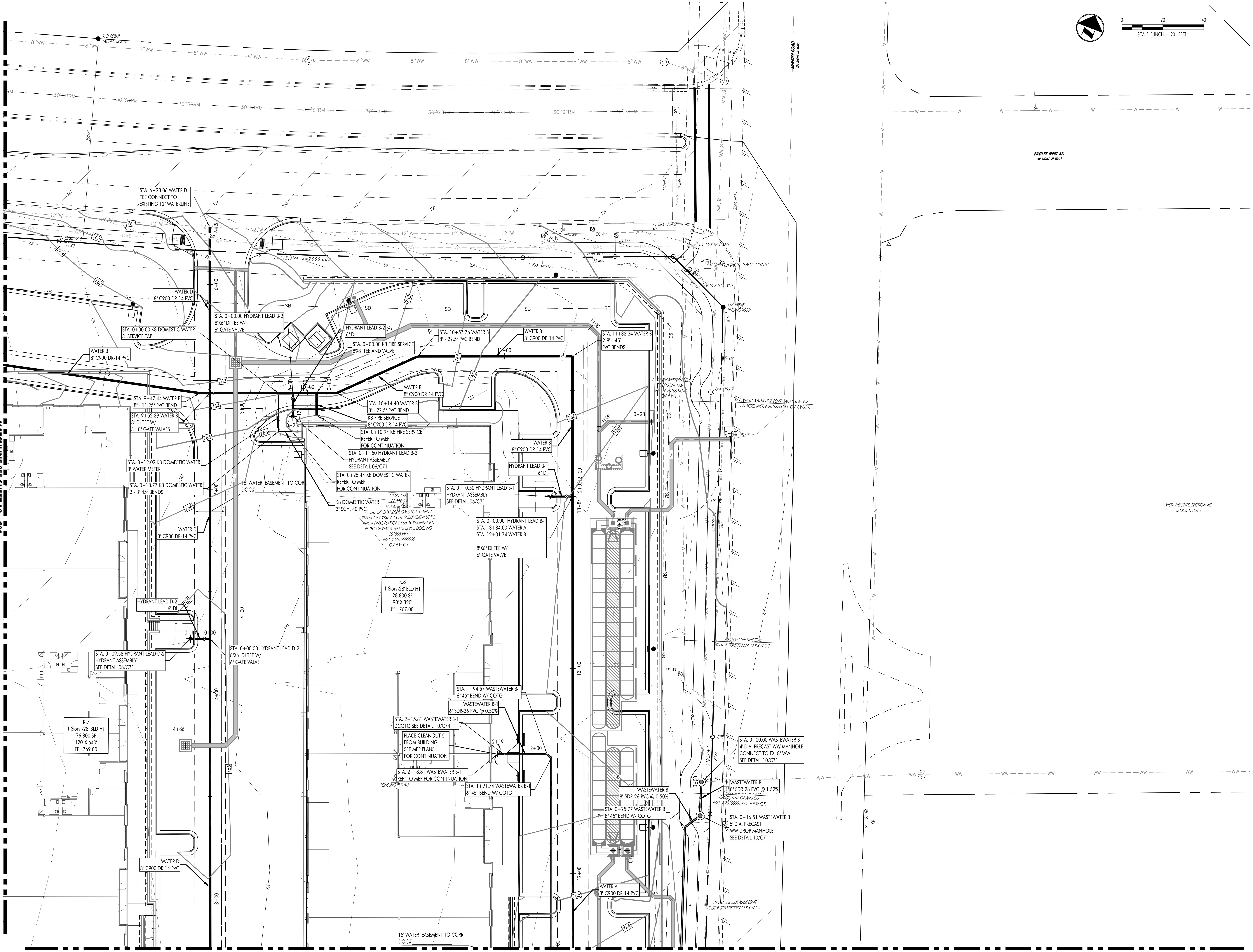

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UTILITY PLAN

C22

22

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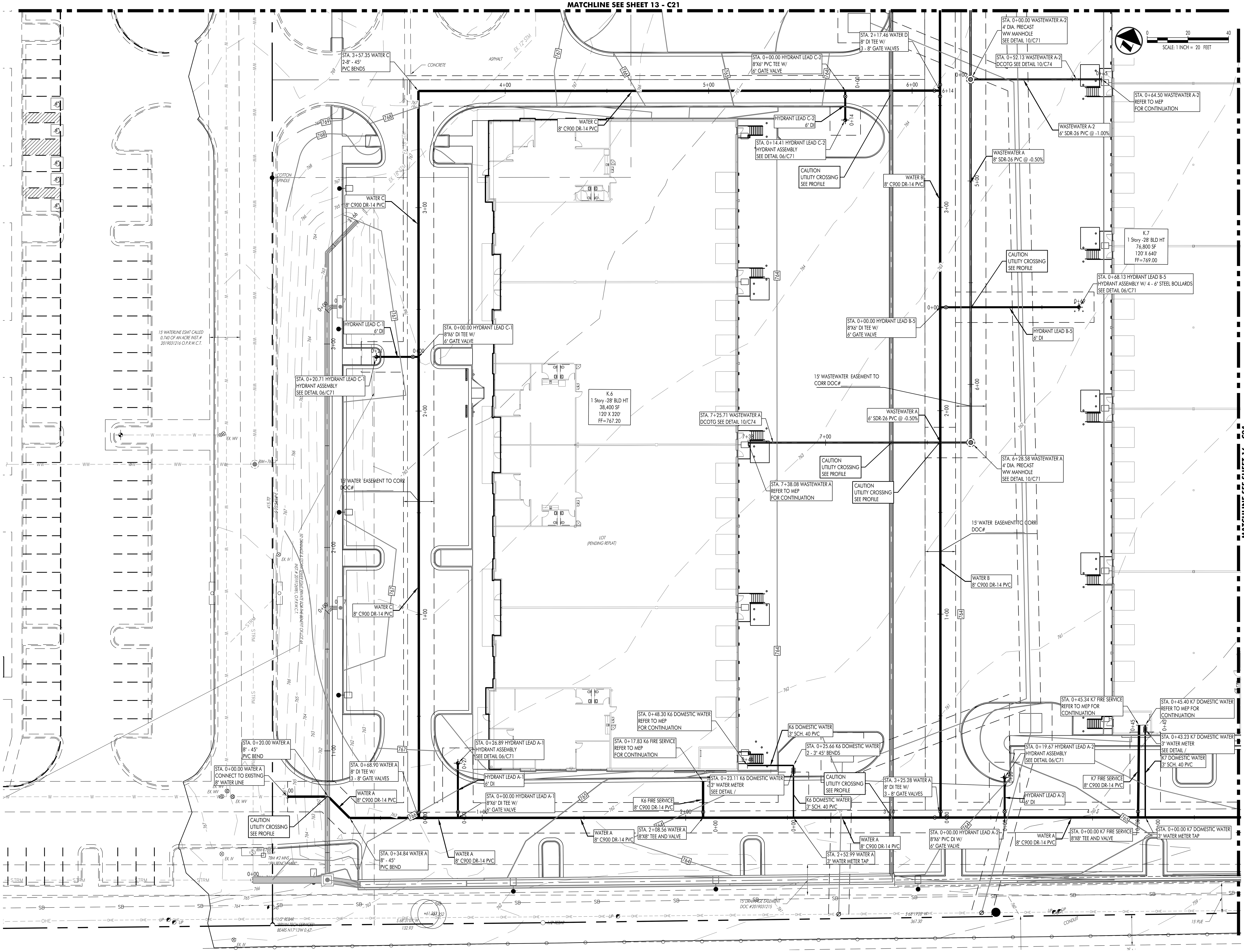
MATCHLINE SEE SHEET 13 - C21
MATCHLINE SEE SHEET 16 - C24
SCALE: 1 INCH = 20 FEET
STA. 3+57.35 WATER C
2-8" - 45°
PVC BENDS
STA. 2+17.46 WATER D
8" DI TEE W/
3 - 8" GATE VALVES
STA. 0+00.00 HYDRANT LEAD C-2
8"X6" PVC TEE W/
6" GATE VALVE
STA. 0+00.00 WASTEWATER A-2
4' DIA. PRECAST
WW MANHOLE
SEE DETAIL 10/C71
STA. 0+52.13 WASTEWATER A-2
DCOTG SEE DETAIL 10/C74
STA. 0+64.50 WASTEWATER A-2
REFER TO MEP
FOR CONTINUATION
WASTEWATER A-2
6" SDR-26 PVC @ -1.00%
WATER C
8" C900 DR-14 PVC
HYDRANT LEAD C-2
6" DI
STA. 0+14.41 HYDRANT LEAD C-2
HYDRANT ASSEMBLY
SEE DETAIL 06/C71
CAUTION
UTILITY CROSSING
SEE PROFILE
WATER B
8" C900 DR-14 PVC
WASTEWATER A
8" SDR-26 PVC @ -0.50%
K.7
1 Story -28' BLD HT
76,800 SF
120' X 640'
FF=769.00
STA. 0+68.13 HYDRANT LEAD B-5
HYDRANT ASSEMBLY W/ 4 - 6" STEEL BOLLARDS
SEE DETAIL 06/C71
HYDRANT LEAD C-1
6" DI
STA. 0+00.00 HYDRANT LEAD C-1
8"X6" DI TEE W/
6" GATE VALVE
STA. 0+00.00 HYDRANT LEAD B-5
8"X6" DI TEE W/
6" GATE VALVE
HYDRANT LEAD B-5
6" DI
15' WATERLINE ESMT CALLED 0.740 OF AN ACRE INST.# 2019031216 O.P.R.W.C.T.
STA. 0+20.71 HYDRANT LEAD C-1
HYDRANT ASSEMBLY
SEE DETAIL 06/C71
K.6
1 Story -28' BLD HT
38,400 SF
120' X 320'
FF=767.20
15' WASTEWATER EASEMENT TO CORR DOC#
STA. 7+25.71 WASTEWATER A
DCOTG SEE DETAIL 10/C74
WASTEWATER A
6" SDR-26 PVC @ -0.50%
STA. 6+28.58 WASTEWATER A
4' DIA. PRECAST
WW MANHOLE
SEE DETAIL 10/C71
STA. 7+38.08 WASTEWATER A
REFER TO MEP
FOR CONTINUATION
15' WATER EASEMENT TO CORR DOC#
LOT
(PENDING REPLAT)
WATER B
8" C900 DR-14 PVC
WATER C
8" C900 DR-14 PVC
STA. 0+48.30 K6 DOMESTIC WATER
REFER TO MEP
FOR CONTINUATION
STA. 0+17.83 K6 FIRE SERVICE
REFER TO MEP
FOR CONTINUATION
K6 DOMESTIC WATER
3" SCH. 40 PVC
STA. 0+25.66 K6 DOMESTIC WATER
2 - 3" 45° BENDS
STA. 0+45.34 K7 FIRE SERVICE
REFER TO MEP FOR
CONTINUATION
STA. 0+45.40 K7 DOMESTIC WATER
REFER TO MEP FOR
CONTINUATION
STA. 0+43.23 K7 DOMESTIC WATER
3" WATER METER
SEE DETAIL /
K7 DOMESTIC WATER
3" SCH. 40 PVC
STA. 0+19.67 HYDRANT LEAD A-2
HYDRANT ASSEMBLY
SEE DETAIL 06/C71
STA. 0+20.00 WATER A
8" - 45°
PVC BEND
STA. 0+26.89 HYDRANT LEAD A-1
HYDRANT ASSEMBLY
SEE DETAIL 06/C71
STA. 0+68.90 WATER A
8" DI TEE W/
3 - 8" GATE VALVES
STA. 0+00.00 WATER A
CONNECT TO EXISTING
8" WATER LINE
HYDRANT LEAD A-1
6" DI
WATER A
8" C900 DR-14 PVC
STA. 0+00.00 HYDRANT LEAD A-1
8"X6" DI TEE W/
6" GATE VALVE
STA. 0+23.11 K6 DOMESTIC WATER
3" WATER METER
SEE DETAIL /
CAUTION
UTILITY CROSSING
SEE PROFILE
STA. 3+25.28 WATER A
8" DI TEE W/
3 - 8" GATE VALVES
K7 FIRE SERVICE
8" C900 DR-14 PVC
HYDRANT LEAD A-2
6" DI
K6 FIRE SERVICE
8" C900 DR-14 PVC
K6 DOMESTIC WATER
3" SCH. 40 PVC
STA. 2+08.56 WATER A
8"X8" TEE AND VALVE
WATER A
8" C900 DR-14 PVC
STA. 0+34.84 WATER A
8" - 45°
PVC BEND
STA. 2+52.99 WATER A
3" WATER METER TAP
STA. 0+00.00 HYDRANT LEAD A-2
8"X6" PVC DI W/
6" GATE VALVE
STA. 0+00.00 K7 FIRE SERVICE
8"X8" TEE AND VALVE
STA. 0+00.00 K7 DOMESTIC WATER
3" WATER METER TAP
15' DRAINAGE EASEMENT DOC #2019031215
15' PUE

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UTILITY PLAN

C23

23

SDP2208-0002

MATCHLINE SEE SHEET 14 - C22

MATCHLINE SEE SHEET 15 - C23

SCALE: 1 INCH = 20 FEET

STA. 1+84.58 WATER D
8" - 45°
PVC BEND

STA. 1+58.71 WATER D
8" - 45°
PVC BEND

WATER D
8" C900 DR-14 PVC

WATER D
8" C900 DR-14 PVC

STA. 2+44.20 WASTEWATER B
4' DIA. PRECAST
WW MANHOLE
SEE DETAIL 10/C71

STA. 0+00.00 HYDRANT LEAD D-1
8'X6' PVC DI W/
6' GATE VALVE

HYDRANT LEAD D-1
6' DI

STA. 0+34.18 HYDRANT LEAD D-1
HYDRANT ASSEMBLY
SEE DETAIL 06/C71

CAUTION
UTILITY CROSSING
SEE PROFILE

3.715 ACRES
= 161,808 S.F.
LOT 7, BLOCK C
REPLAT OF CHANDLER OAKS LOT 6, AND A REPLAT OF
CYPRESS COVE SUBDIVISION LOT 2, AND A FINAL PLAT
OF 2.905 ACRES RELEASED RIGHT OF WAY (CYPRESS
BLVD.) DOC. NO. 2015058599
INST.# 2015080039
O.P.R.W.C.T.

K-9
1 Story-28' BLD HT
21,600 SF
90' X 240'
FF=767.00

STA. 4+47.25 WASTEWATER B
DCOTG SEE DETAIL 10/C74

STA. 4+50.25 WASTEWATER B
REF. TO MEP FOR CONTINUATION

LOT
(PENDING REPLAT)

15' WATER EASEMENT TO CORR DOC#

STA. 0+39.54 HYDRANT LEAD A-3
HYDRANT ASSEMBLY
SEE DETAIL 06/C71

STA. 0+20.72 K9 DOMESTIC WATER
2 - 3" 45° BENDS

STA. 0+17.31 K9 DOMESTIC WATER
3" WATER METER
SEE DETAIL /

HYDRANT LEAD A-3
6' DI

K9 DOMESTIC WATER
3" SCH. 40 PVC

STA. 0+26.05 K9 DOMESTIC WATER
REFER TO MEP FOR
CONTINUATION

STA. 0+13.46 K9 FIRE SERVICE
REFER TO MEP
FOR CONTINUATION

K9 FIRE SERVICE
8" C900 DR-14 PVC

STA. 0+00.00 K9 FIRE SERVICE
8'X8' TEE AND VALVE

CAUTION
UTILITY CROSSING
SEE PROFILE

STA. 0+00.00 K9 DOMESTIC WATER
3" SERVICE TAP

1/2" REBAR
BEARS N18°57'W 0.42

EX. IV

WASTEWATER B
8" SDR-26 PVC @ 0.50%

5' WASTEWATER EASEMENT TO CORR DOC#

STA. 10+87.01 WATER A
8'X6' DI TEE W/
6' GATE VALVE

CAUTION
UTILITY CROSSING
SEE PROFILE

STA. 0+21.50 HYDRANT LEAD A-5
HYDRANT ASSEMBLY
SEE DETAIL 06/C71

10' PUE & SIDEWALK ESMT
INST. #

HYDRANT LEAD A-5
6' DI

WASTEWATER B
8" SDR-26 PVC @ 3.00%

STA. 1+83.94 WASTEWATER B
4' DIA. PRECAST
WW MANHOLE
SEE DETAIL 10/C71

STA. 10+53.96 WATER A
8' DI TEE W/
3 - 8" GATE VALVES

WATER A
8" C900 DR-14 PVC

SUNRISE ROAD
(80' RIGHT-OF-WAY)

ROUND ROCK GLEN
LOT 8C
DOC. NO. 2009084

WATER A
8" C900 DR-14 PVC

STA. 0+00.00 HYDRANT LEAD A-4
8'X6' DI TEE W/
6' GATE VALVE

HYDRANT LEAD A-4
6' DI

STA. 4+21.92 WASTEWATER B
4' DIA. PRECAST
WW MANHOLE
SEE DETAIL 10/C71

STA. 0+10.44 HYDRANT LEAD A-4
HYDRANT ASSEMBLY
SEE DETAIL 06/C71

WATER A
8" C900 DR-14 PVC

STA. 7+47.78 WATER A
2-8" - 45°
PVC BENDS

10' PUE & SIDEWALK ESMT
INST. #

WATER A
8" C900 DR-14 PVC

S 18°09'08" E
524.36'

S 68°19'28" W
300.00'

ELEV=755.7

OHE

SB

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52960
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HAGOOD ENGINEERING

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TBPE Reg. No. F-12709

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J:\2013\13-018a Burke CC Id_511-3 Drawings\Studio8 logo.jpg

. Eagles Nest 3
Lot KE - Bldgs. 6-9

3259 Eagles Nest St.
Round Rock, Texas,
78665

Issue

1	09.23.2022	50% CD - Pricing
2	11.04.2022	95% CD
3	12.05.2022	CORR/TCEQ
4	4.30.2023	TCEQ UPDATE

Project Number: 22-019g
Drawn By: JSR
Checked By: RB

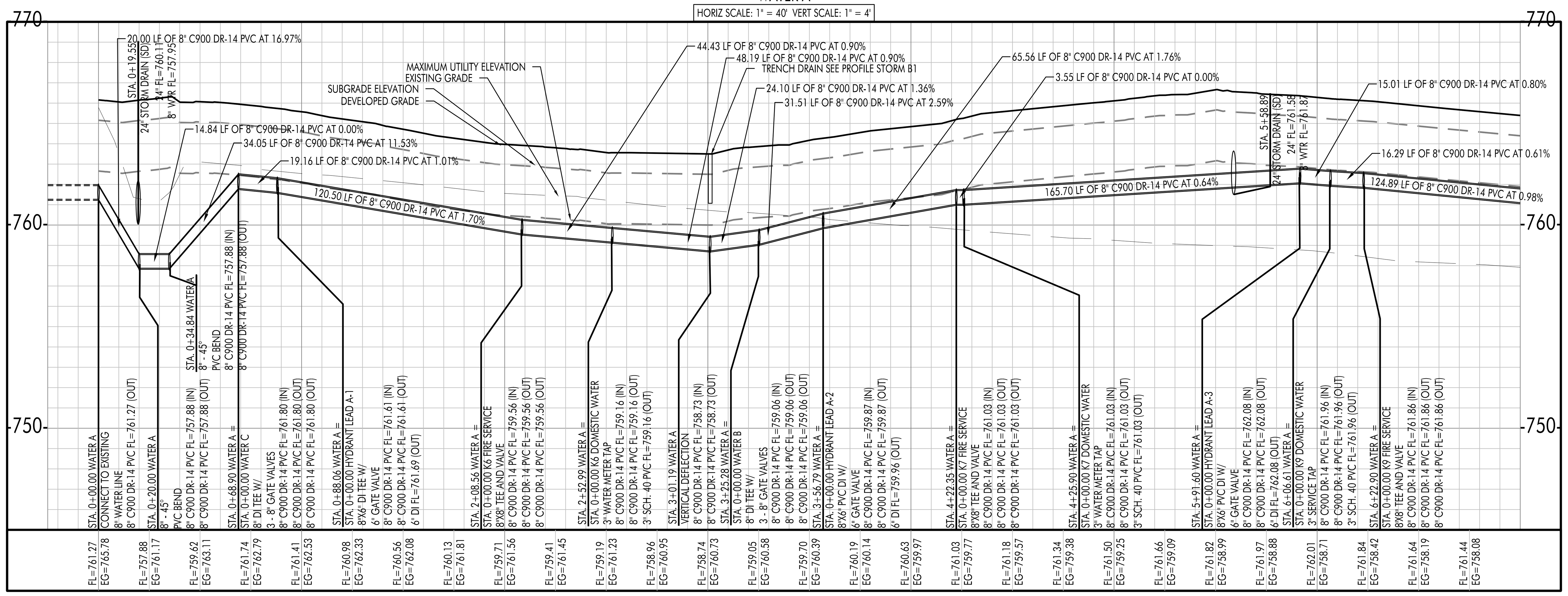
UTILITY PLAN

C24

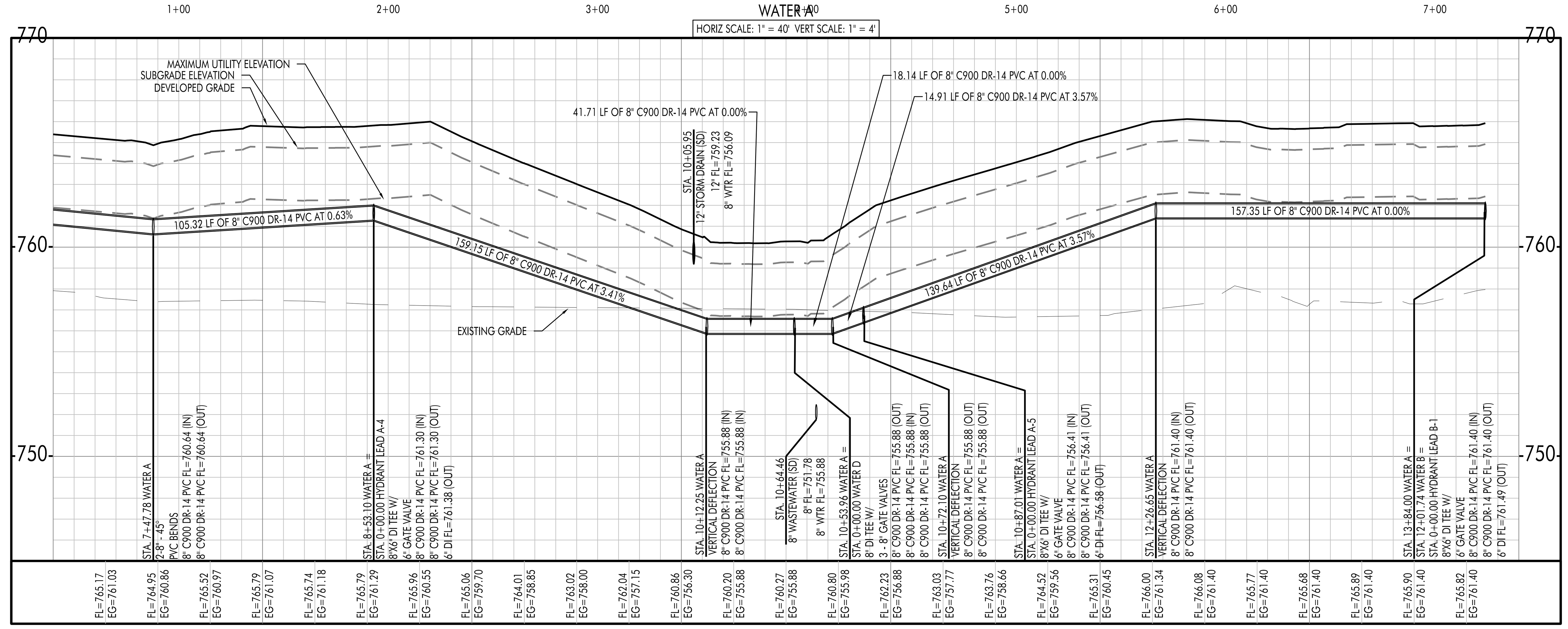
24

SDP2208-0002

WATER A



WATER A



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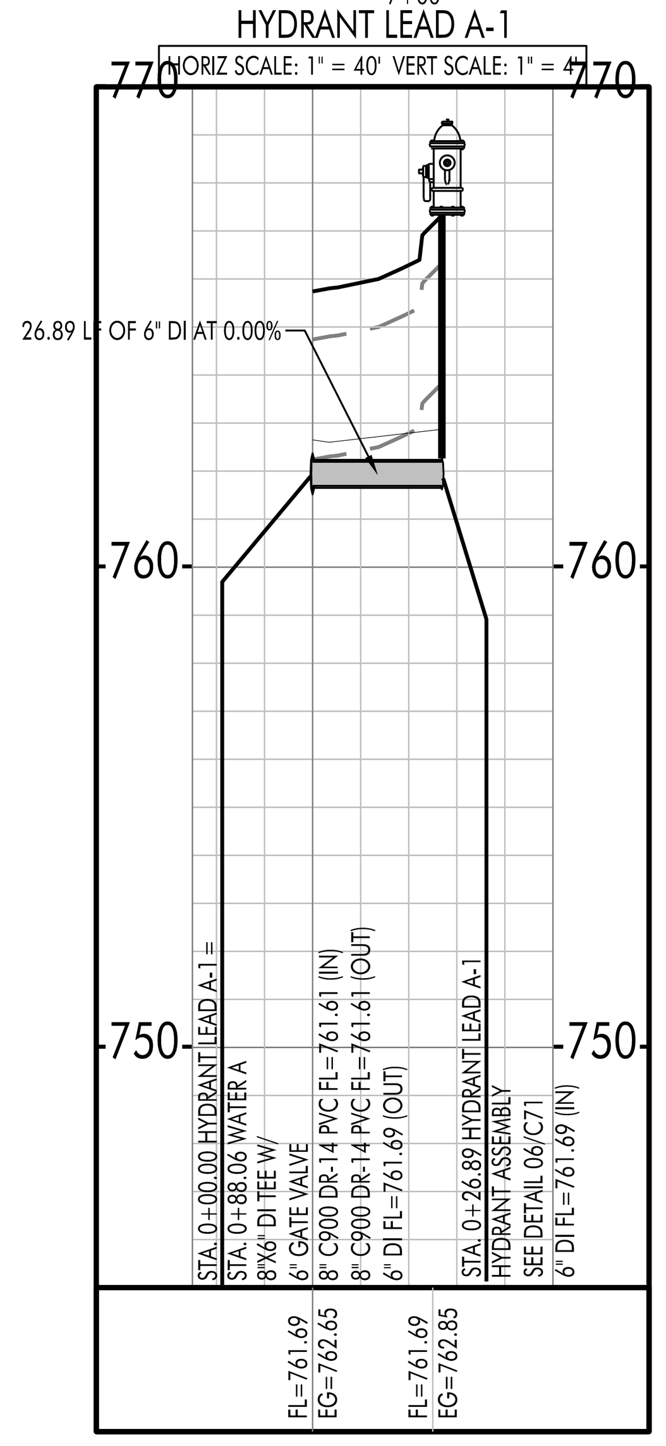

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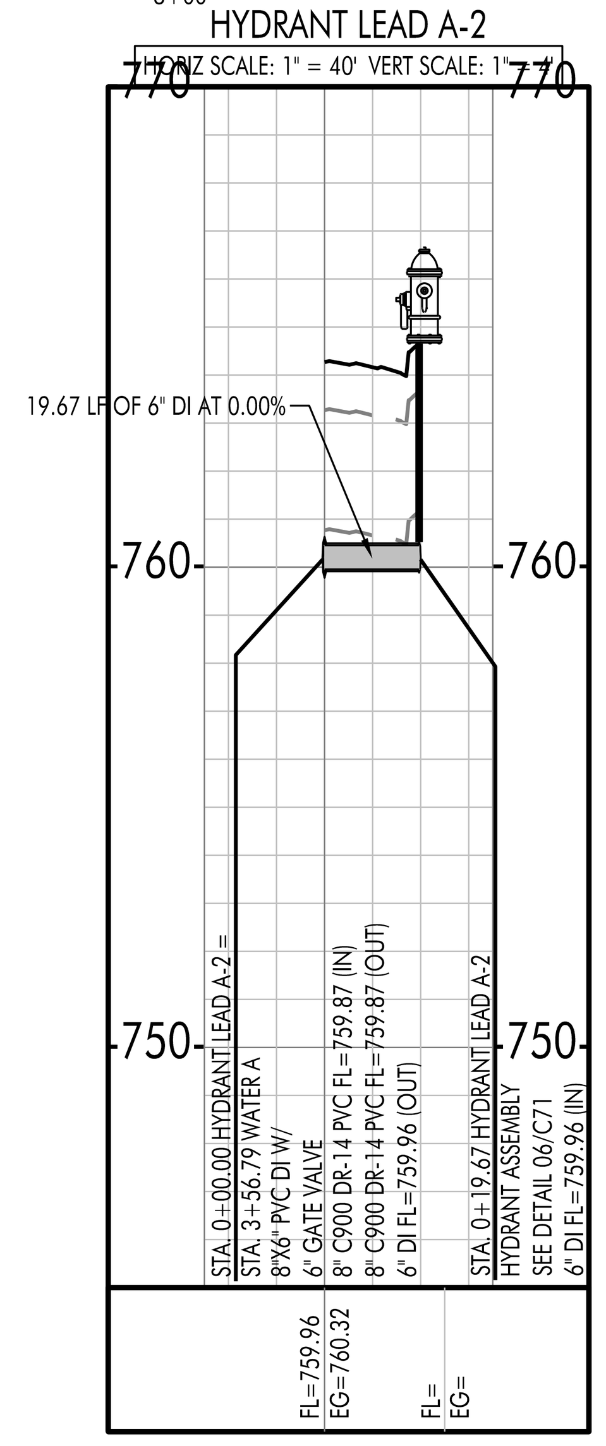

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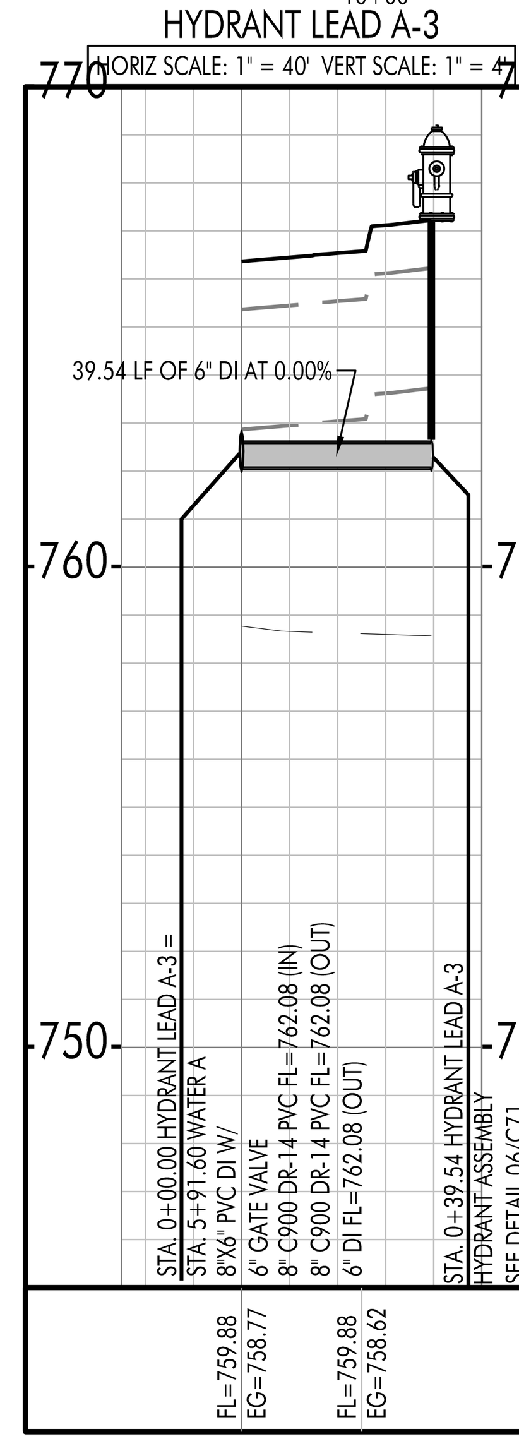

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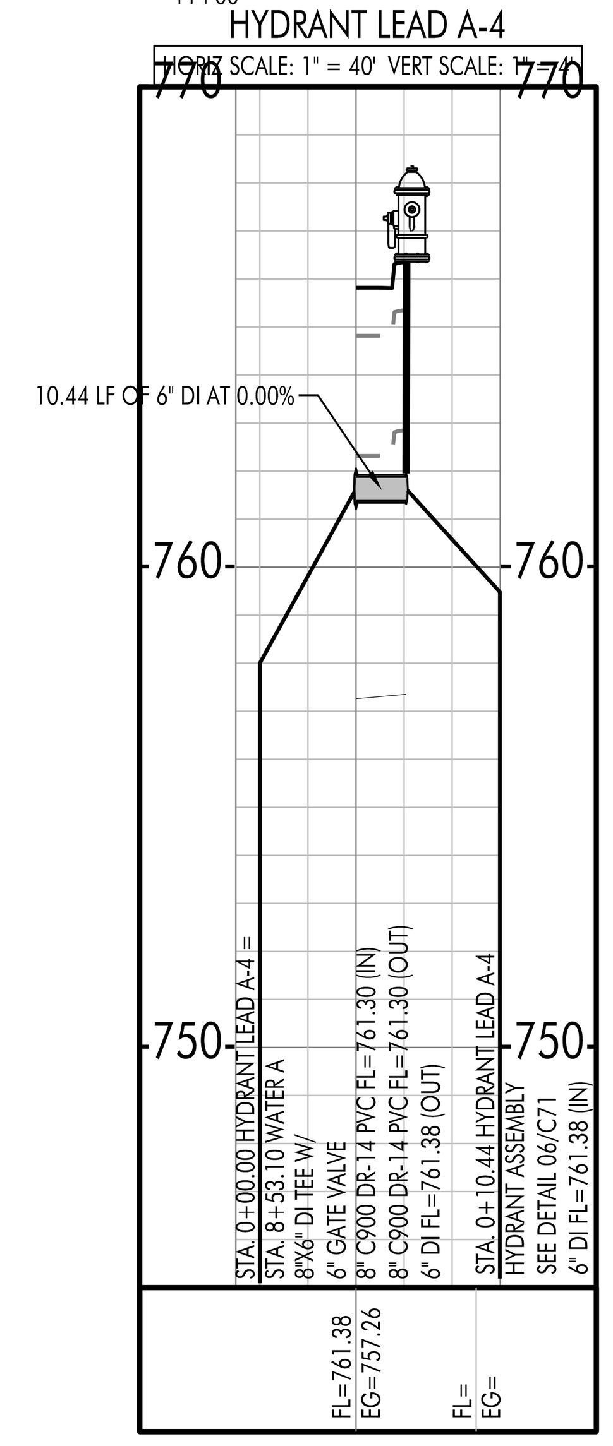

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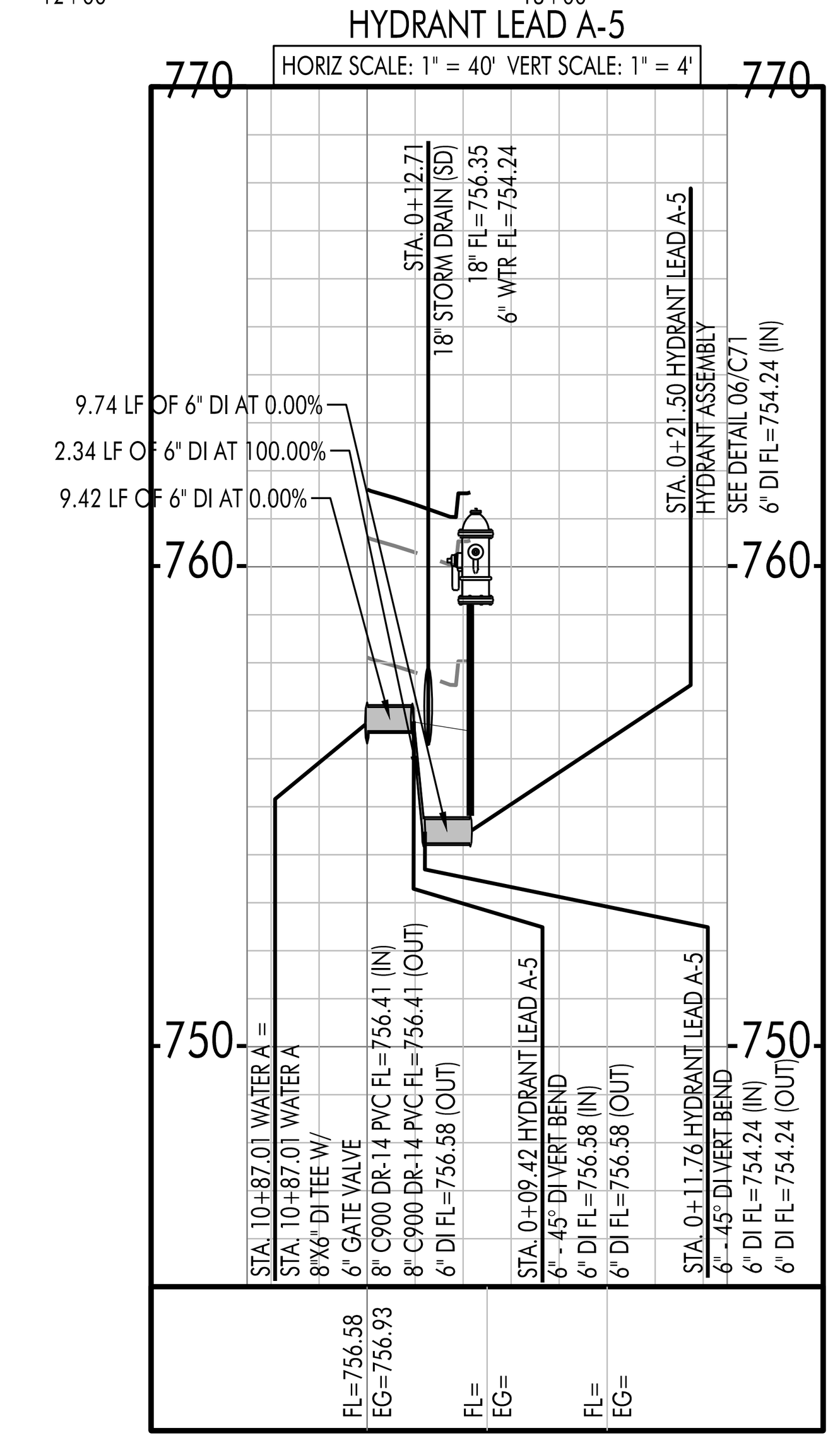

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Drawn By: JSR
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WATER PROFILES

C25

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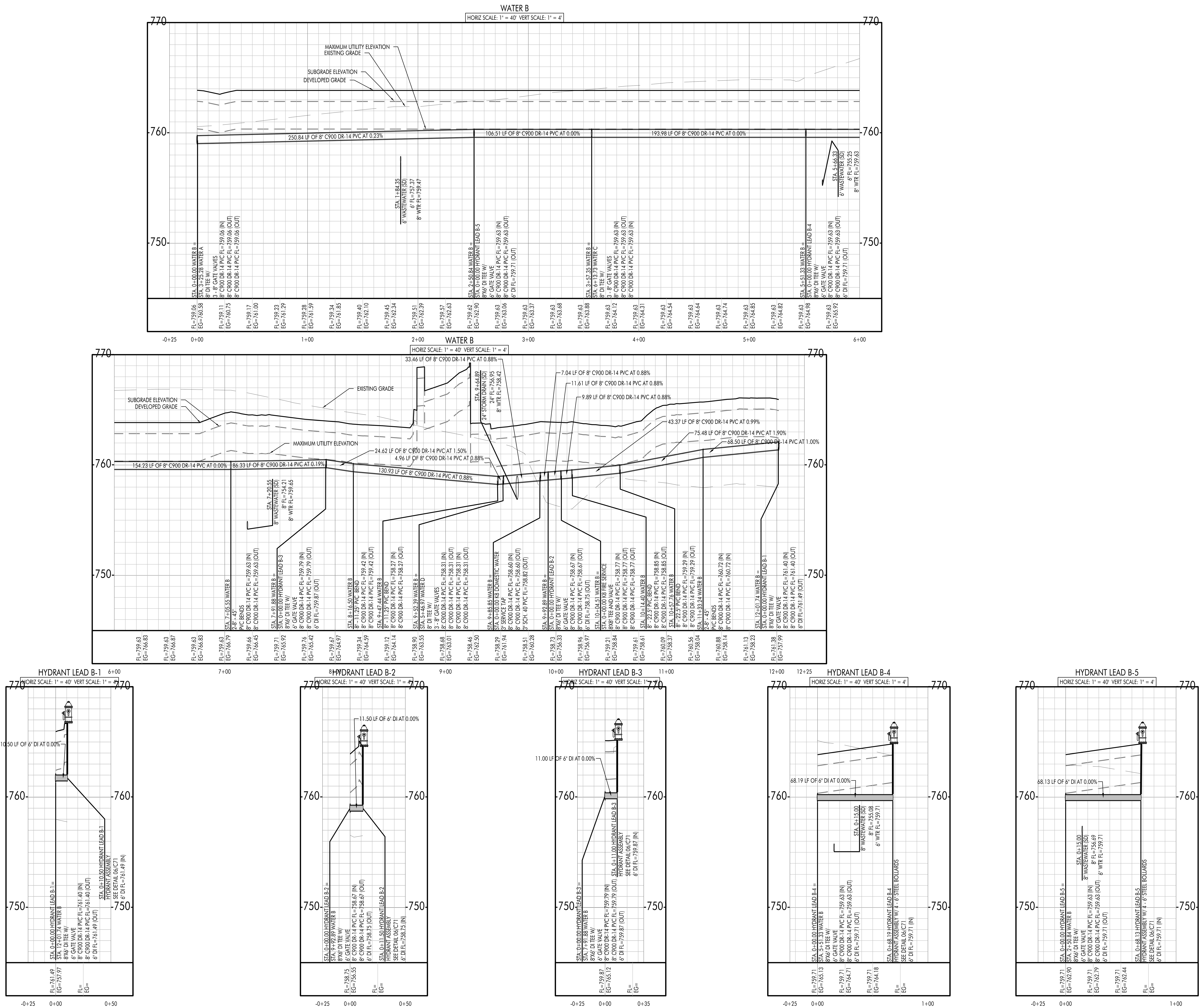

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Checked By: RB

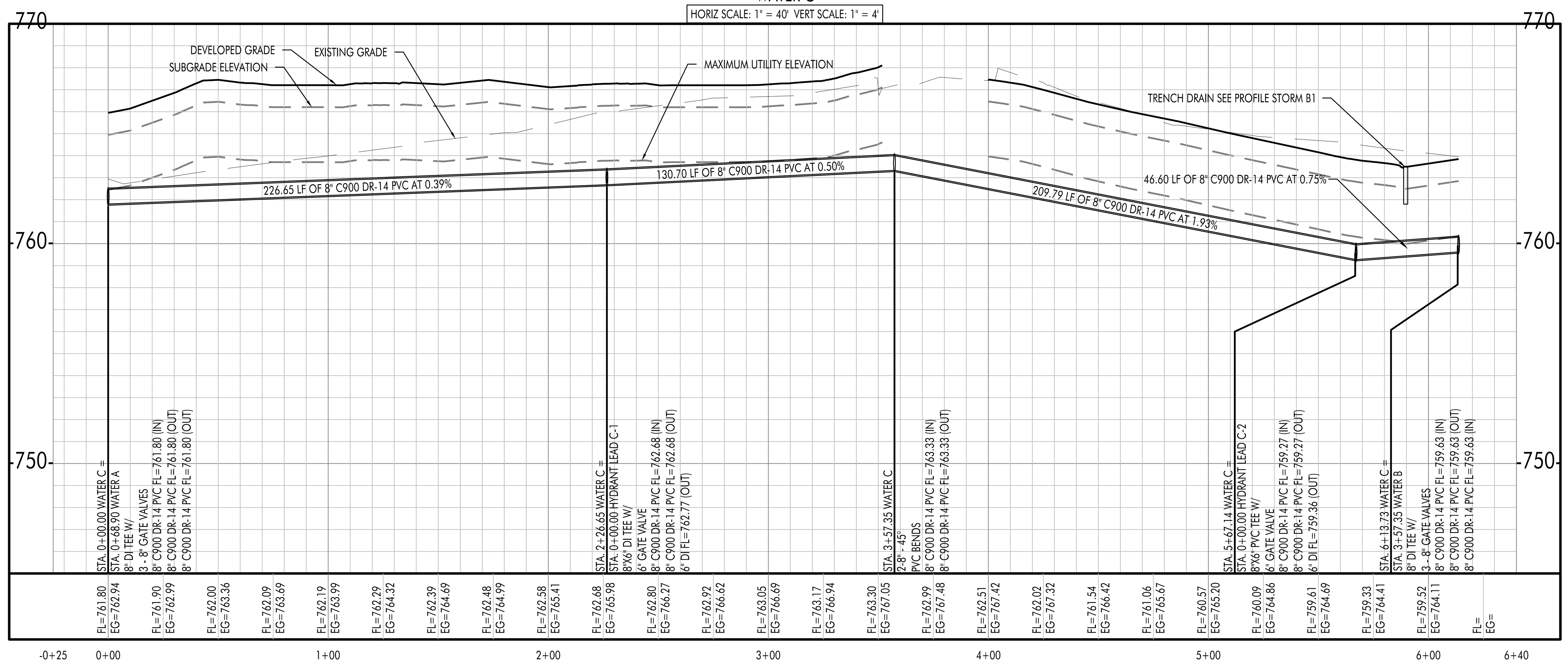
WATER PROFILES

C26

SDP2208-0002

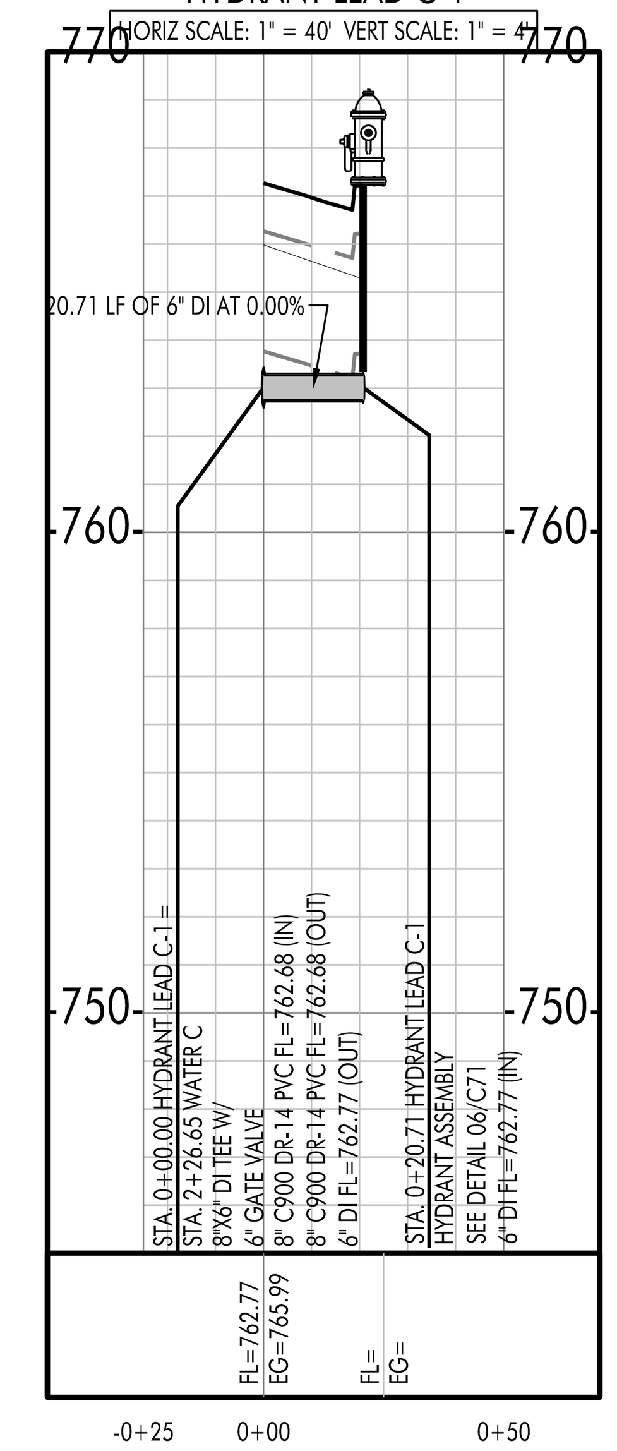
WATER C

HORIZ SCALE: 1" = 40' VERT SCALE: 1" = 4'



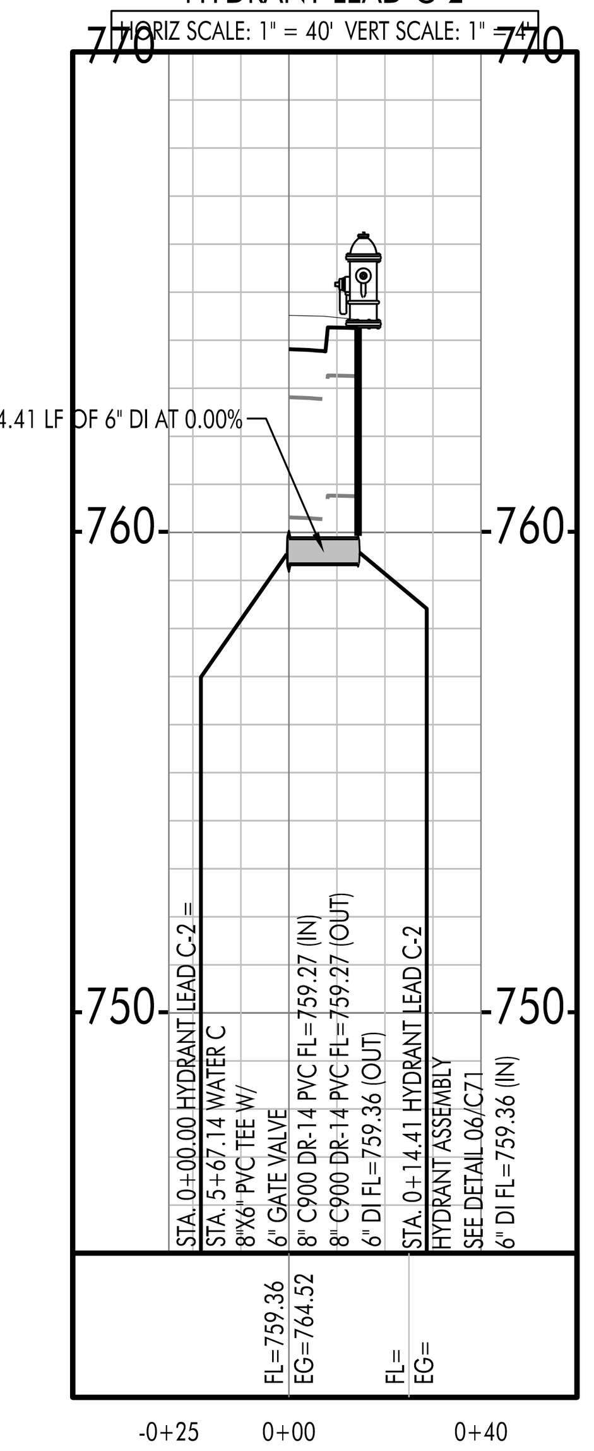
HYDRANT LEAD C-1

HORIZ SCALE: 1" = 40' VERT SCALE: 1" = 4'



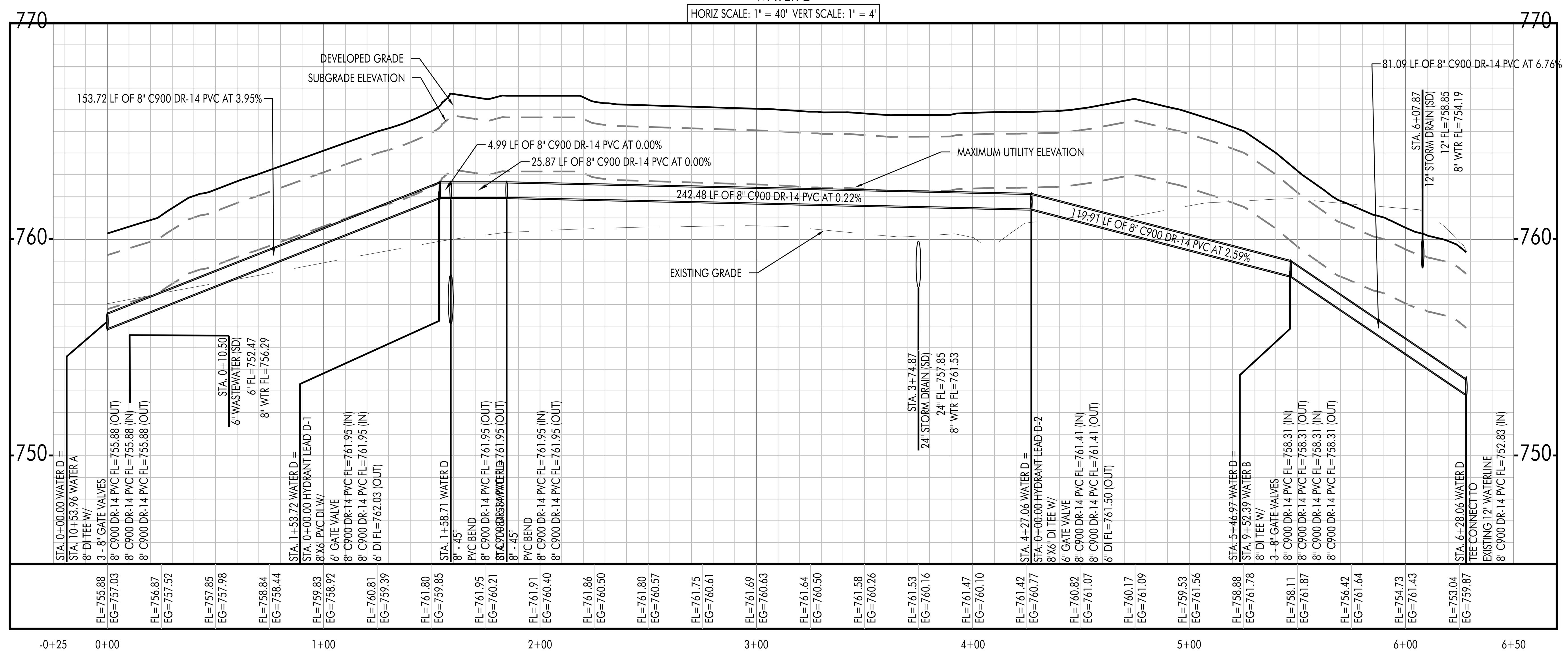
HYDRANT LEAD C-2

HORIZ SCALE: 1" = 40' VERT SCALE: 1" = 4'



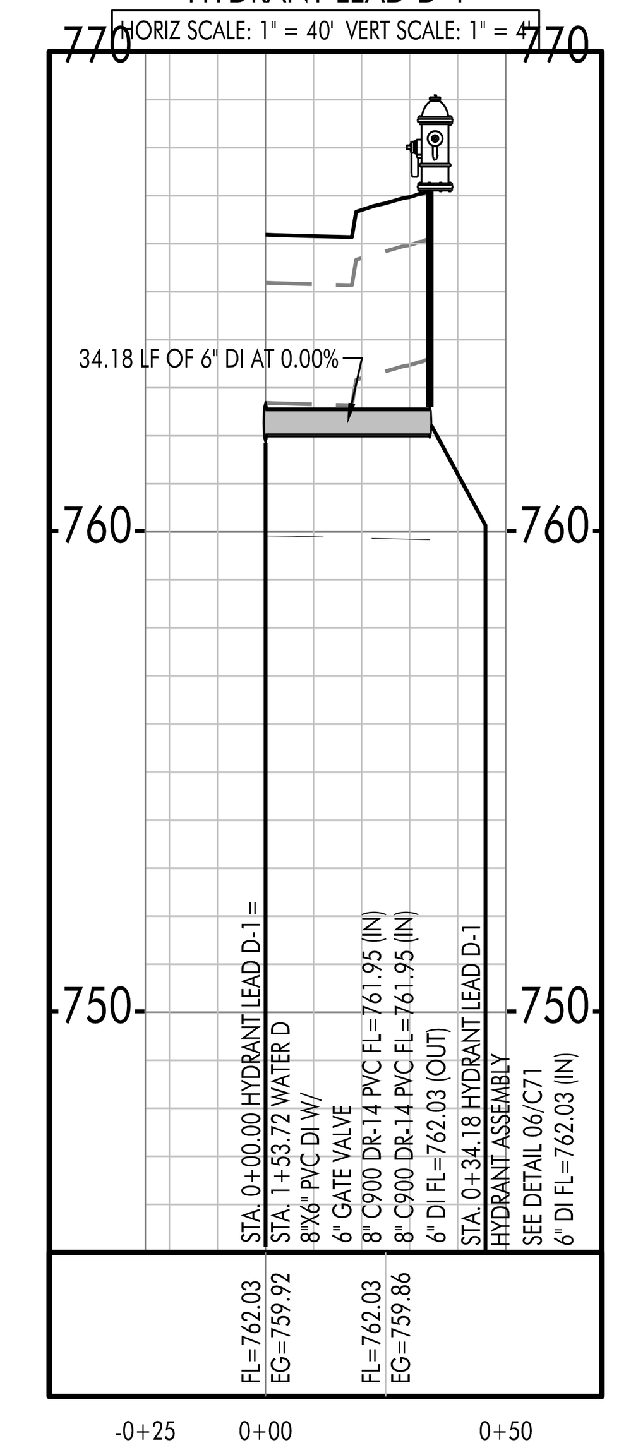
WATER D

HORIZ SCALE: 1" = 40' VERT SCALE: 1" = 4'



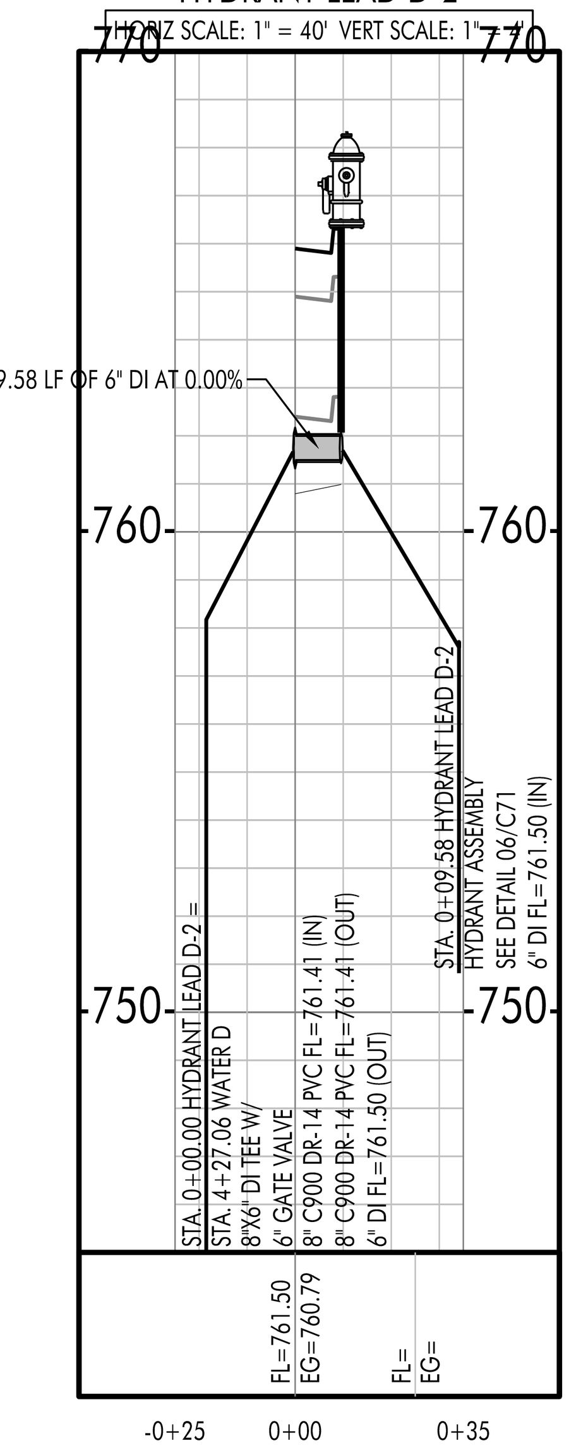
HYDRANT LEAD D-1

HORIZ SCALE: 1" = 40' VERT SCALE: 1" = 4'



HYDRANT LEAD D-2

HORIZ SCALE: 1" = 40' VERT SCALE: 1" = 4'



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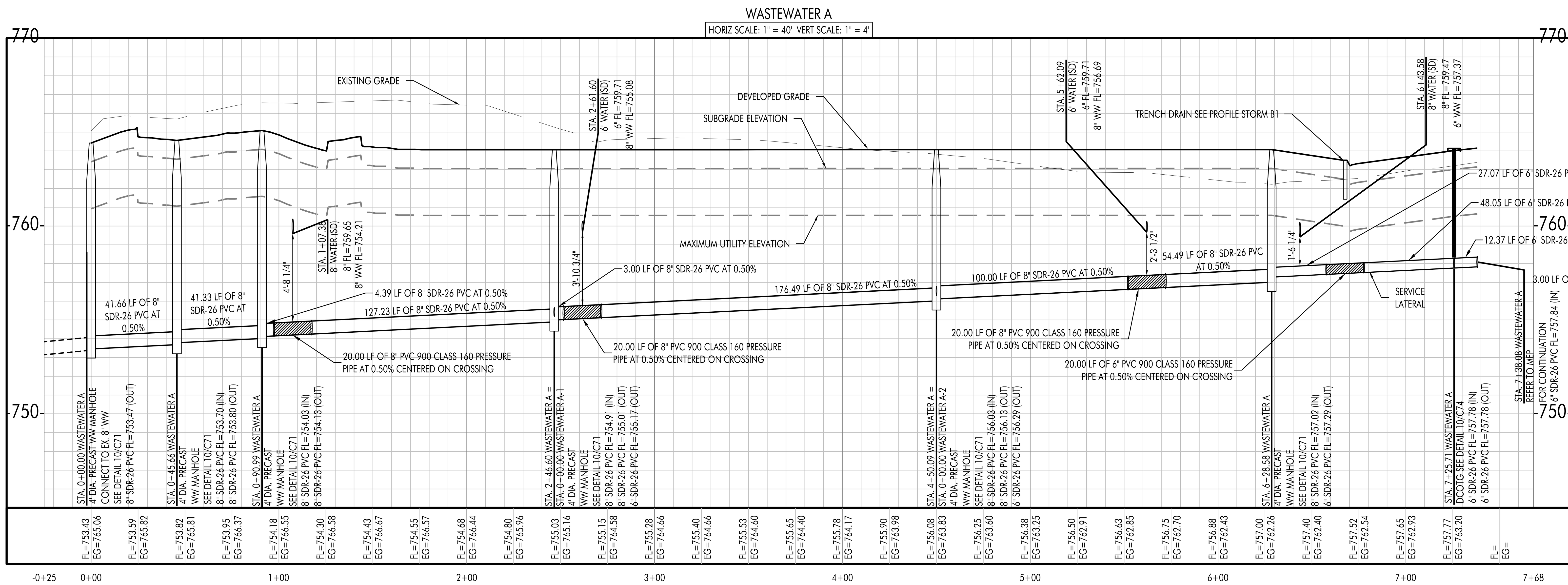
Checked By: RB

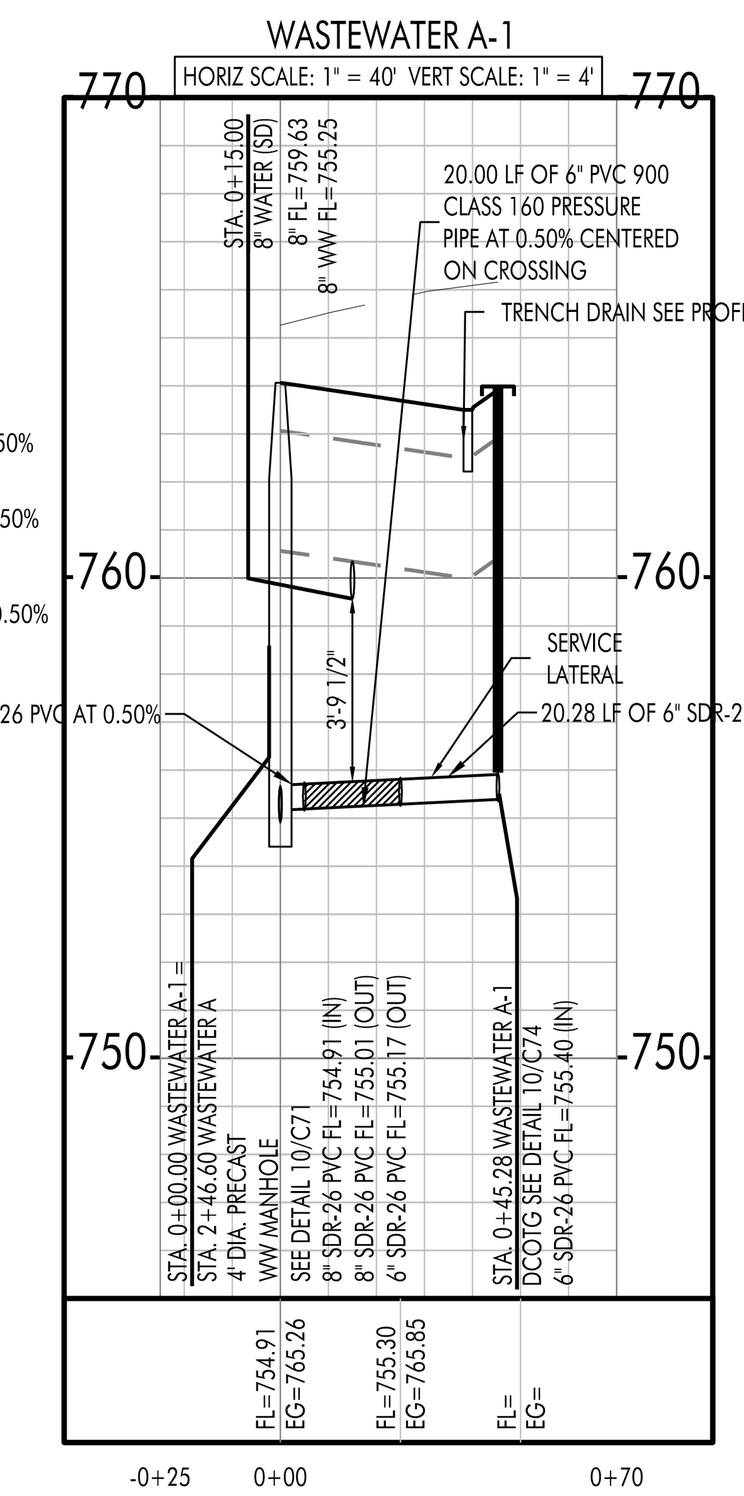
WATER PROFILES

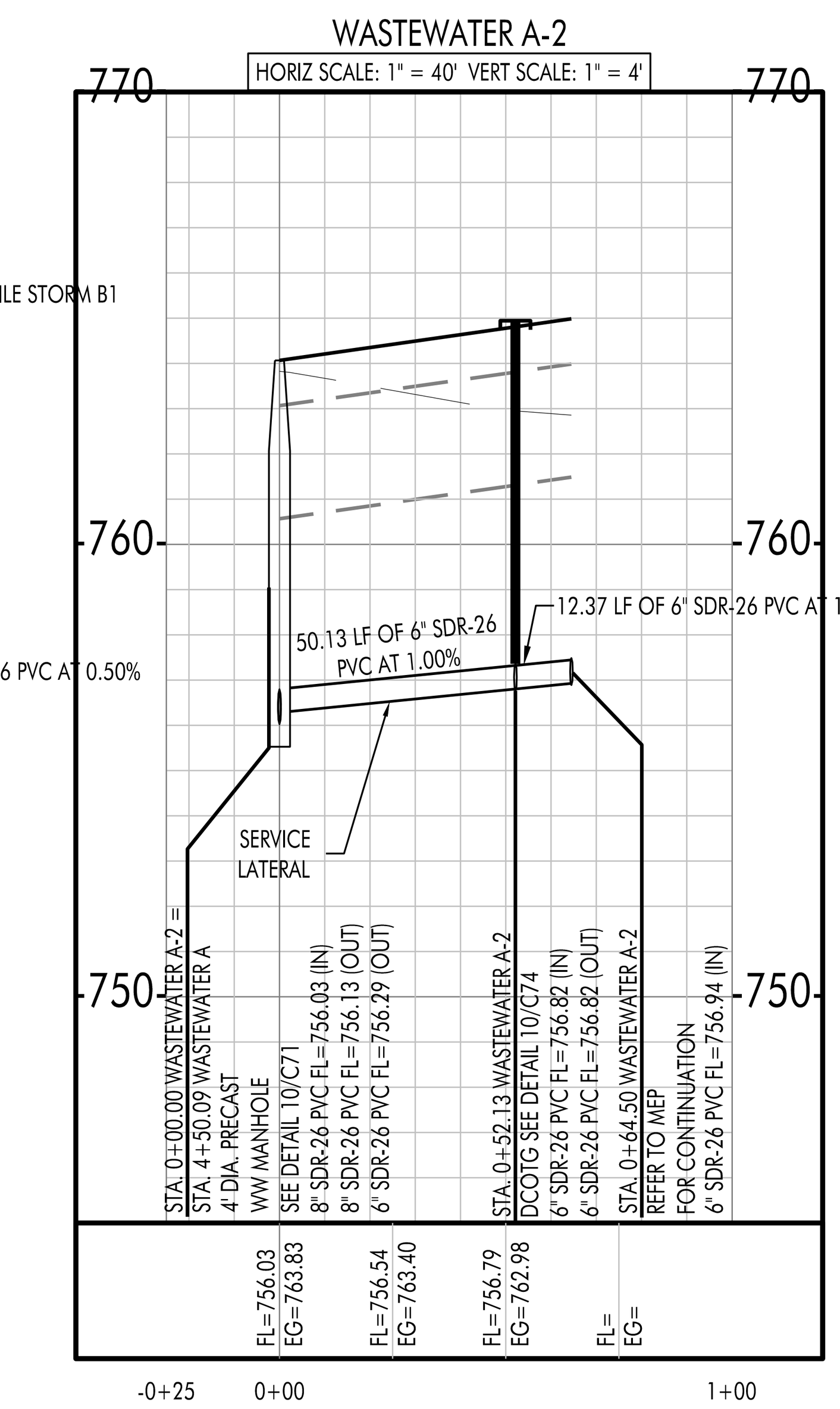
C27

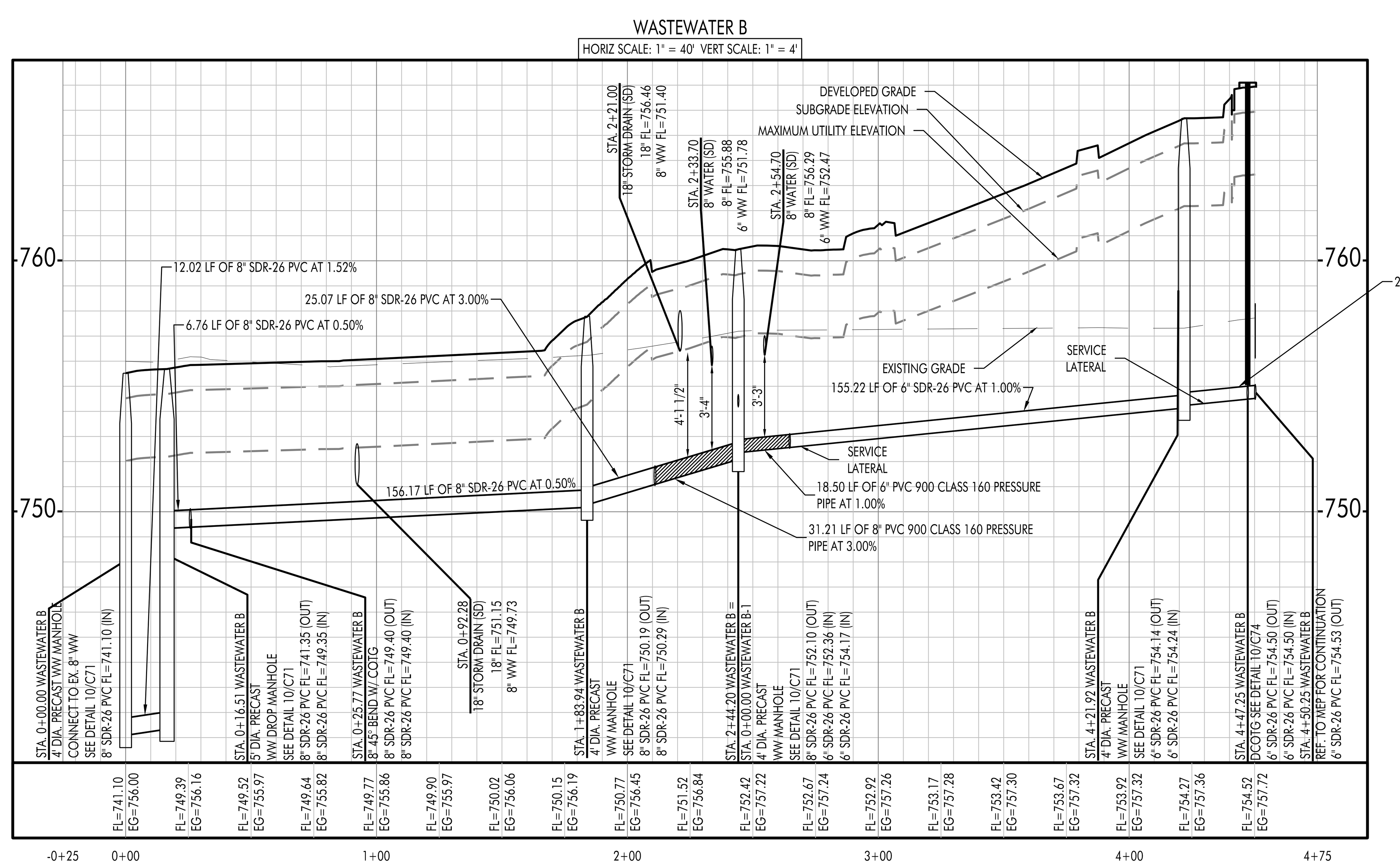
27

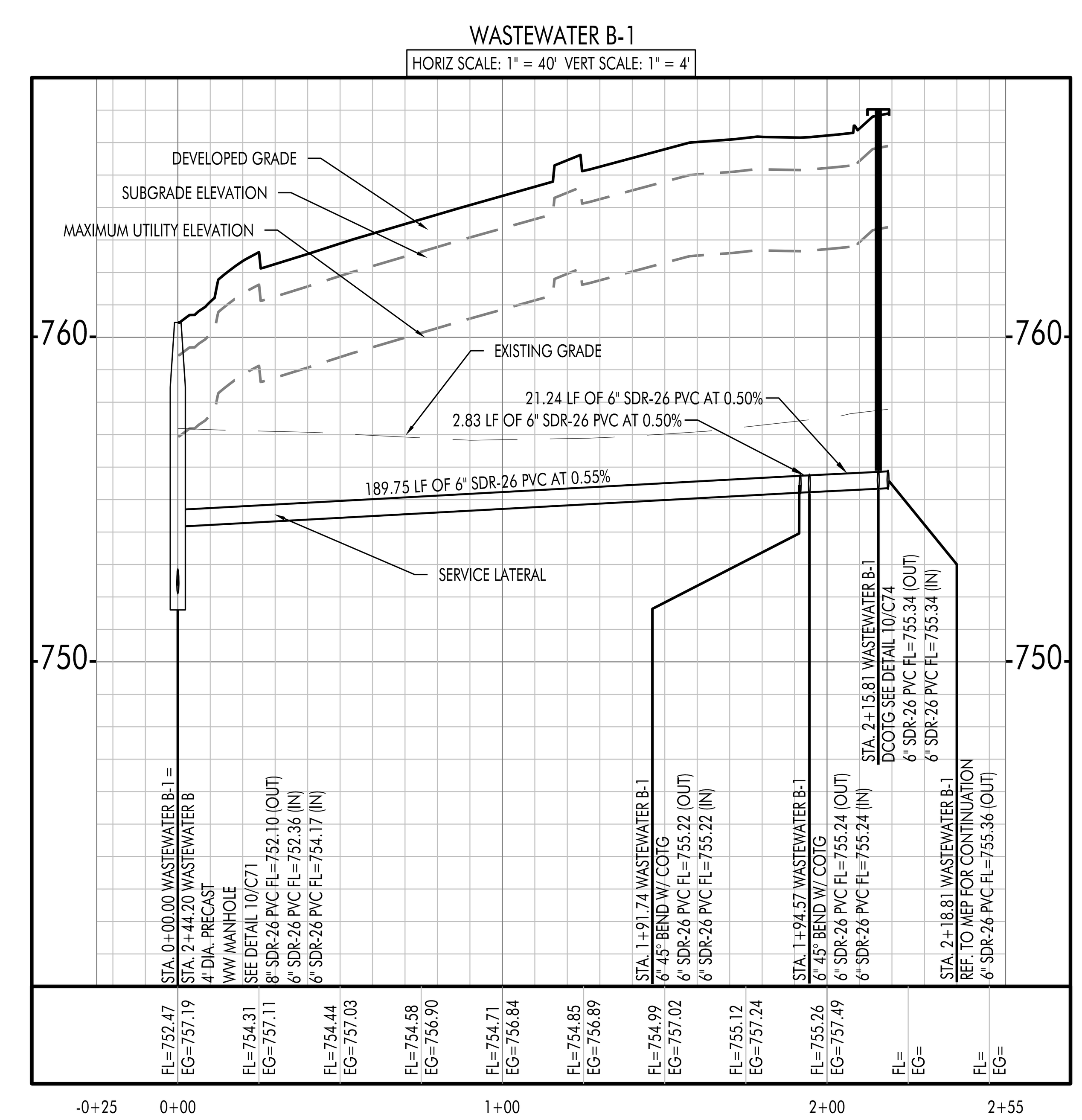
SDP2208-0002











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Lot KE - Bldgs. 6-9

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4	4.30.2023	TCEQ UPDATE

Project Number: 22-019g
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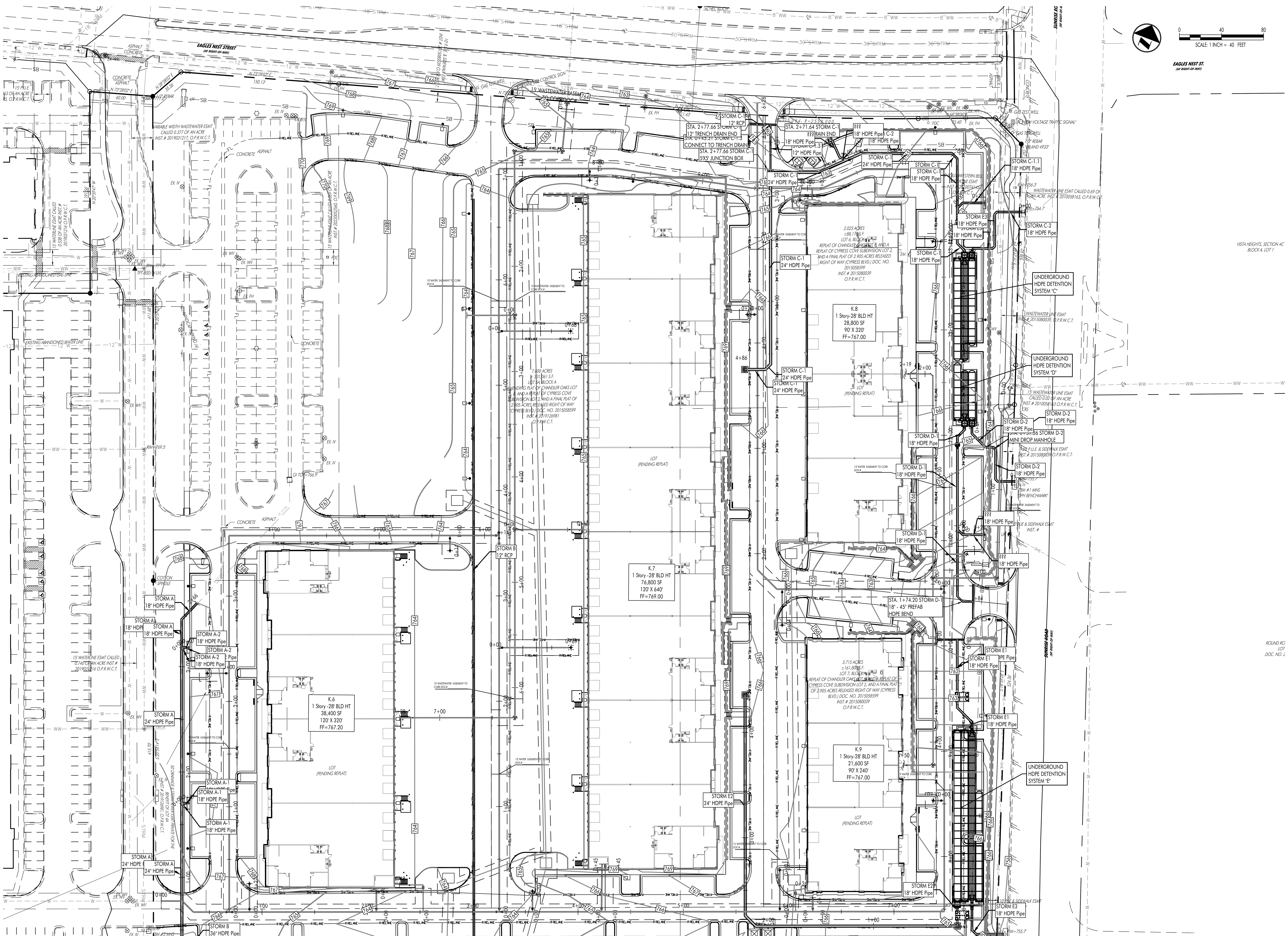
Checked By: RB

WASTEWATER PROFILES

C28

28

SDP2208-0002



NOTES:
1. ALL STORM SEWER WYES, BENDS AND PIPE SIZE TRANSITIONS SHALL BE PREFABRICATED AND FREE FROM DEFECTS.

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OVERALL DRAINAGE PLAN

C30

29

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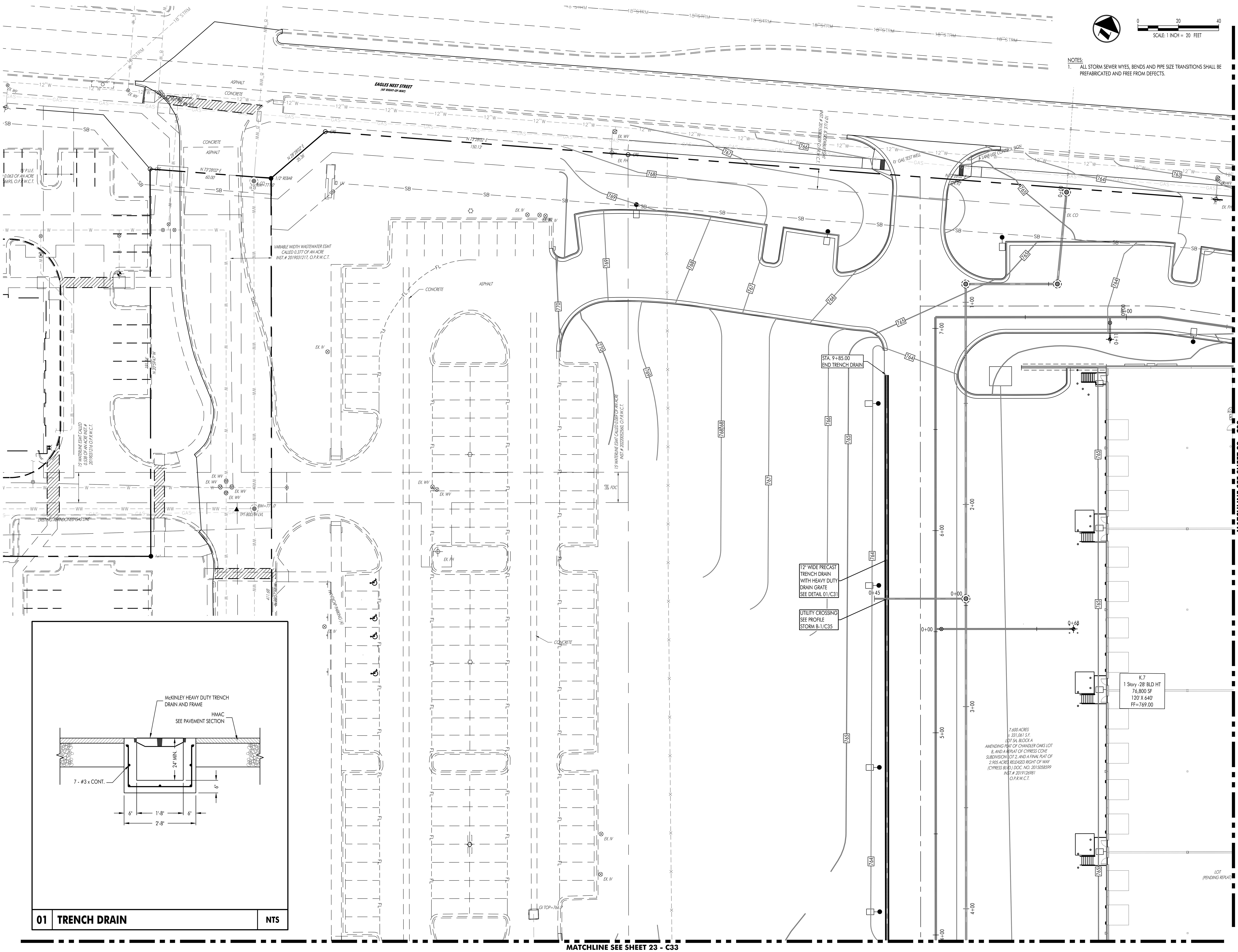

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DRAINAGE PLAN

C31

30

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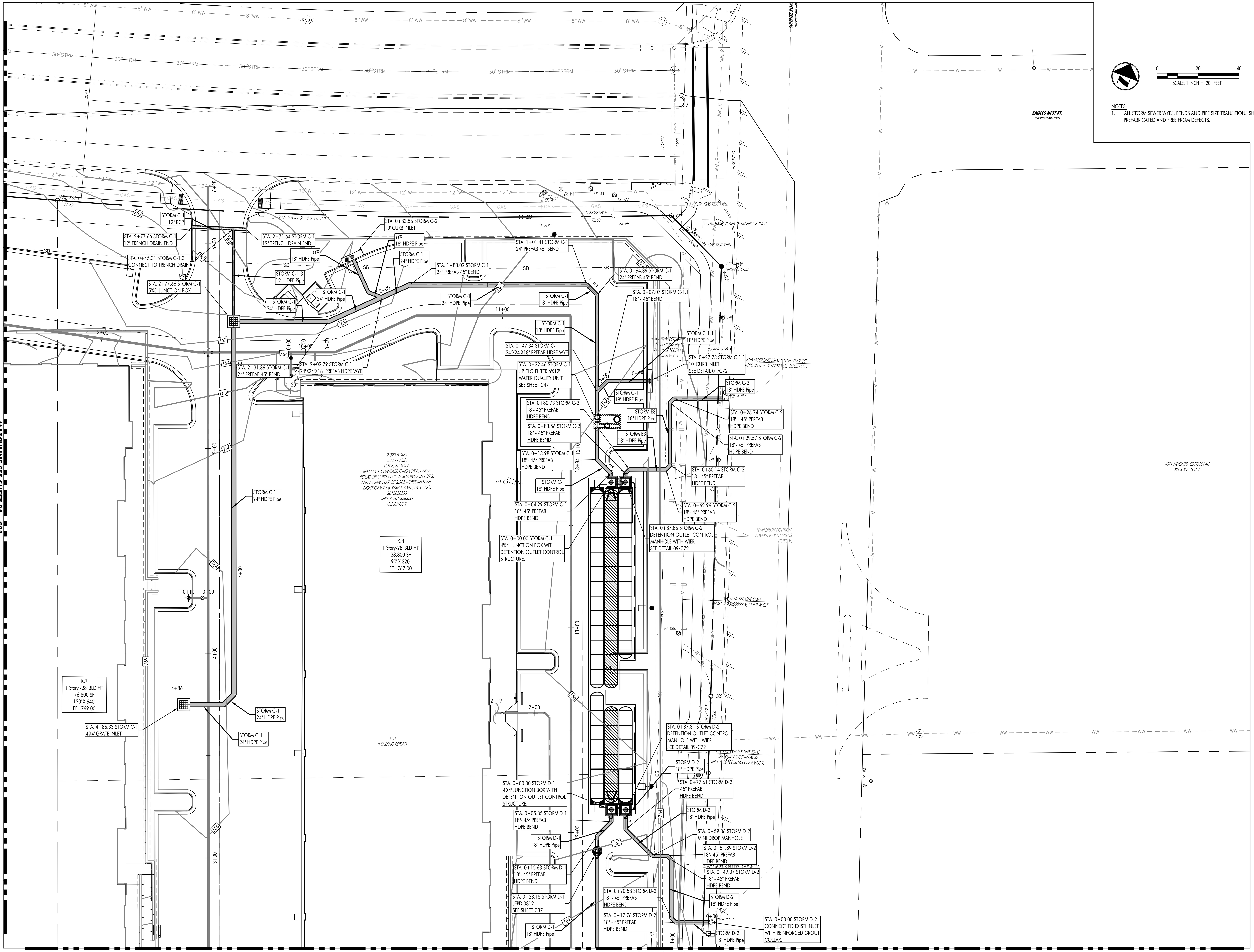

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DRAINAGE PLAN

C32

31

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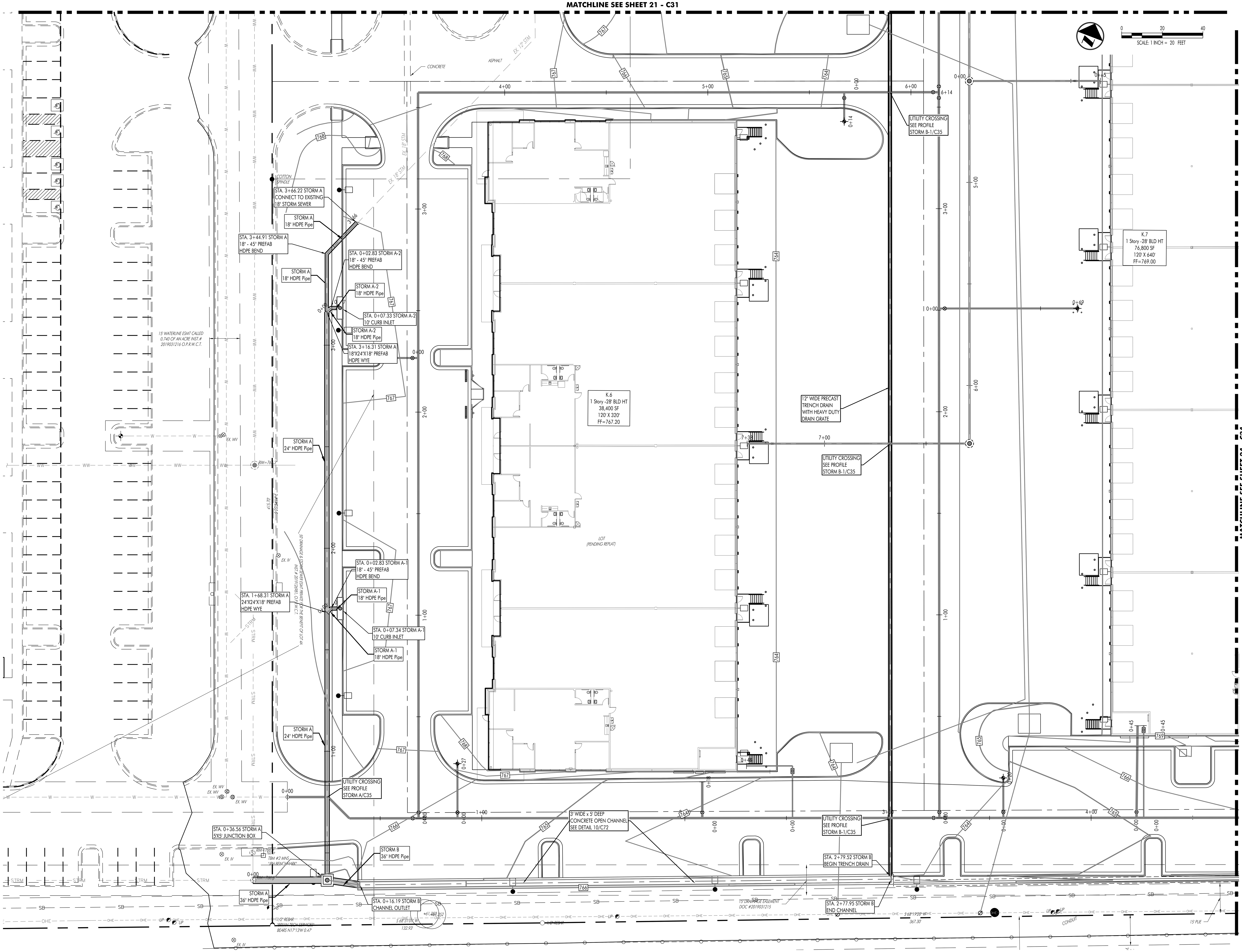
MATCHLINE SEE SHEET 21 - C31
MATCHLINE SEE SHEET 24 - C34
SCALE: 1 INCH = 20 FEET
STA. 3+66.22 STORM A CONNECT TO EXISTING 18" STORM SEWER
STORM A 18" HDPE Pipe
STA. 3+44.91 STORM A 18" - 45° PREFAB HDPE BEND
STA. 0+02.83 STORM A-2 18" - 45° PREFAB HDPE BEND
STORM A-2 18" HDPE Pipe
STA. 0+07.33 STORM A-2 10' CURB INLET
STA. 3+16.31 STORM A 18"X24"X18" PREFAB HDPE WYE
STORM A 24" HDPE Pipe
STA. 0+02.83 STORM A-1 18" - 45° PREFAB HDPE BEND
STORM A-1 18" HDPE Pipe
STA. 1+68.31 STORM A 24"X24"X18" PREFAB HDPE WYE
STA. 0+07.34 STORM A-1 10' CURB INLET
UTILITY CROSSING SEE PROFILE STORM A/C35
STA. 0+36.56 STORM A 5'X5' JUNCTION BOX
STORM B 36" HDPE Pipe
STORM A 36" HDPE Pipe
STA. 0+16.19 STORM B CHANNEL OUTLET
3' WIDE x 5' DEEP CONCRETE OPEN CHANNEL SEE DETAIL 10/C72
UTILITY CROSSING SEE PROFILE STORM B-1/C35
STA. 2+79.52 STORM B BEGIN TRENCH DRAIN
STA. 2+77.95 STORM B END CHANNEL
12" WIDE PRECAST TRENCH DRAIN WITH HEAVY DUTY DRAIN GRATE
K.6 1 Story -28' BLD HT 38,400 SF 120' X 320' FF=767.20
K.7 1 Story -28' BLD HT 76,800 SF 120' X 640' FF=769.00
LOT (PENDING REPLAT)
15' WATERLINE ESMT CALLED 0.740 OF AN ACRE INST.# 2019031216 O.P.R.W.C.T.
15' DRAINAGE EASEMENT DOC #2019031215
CONCRETE
ASPHALT
EX. 18" STM
EX. WV
CONDUIT
15' PUE

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DRAINAGE PLAN

C33

32

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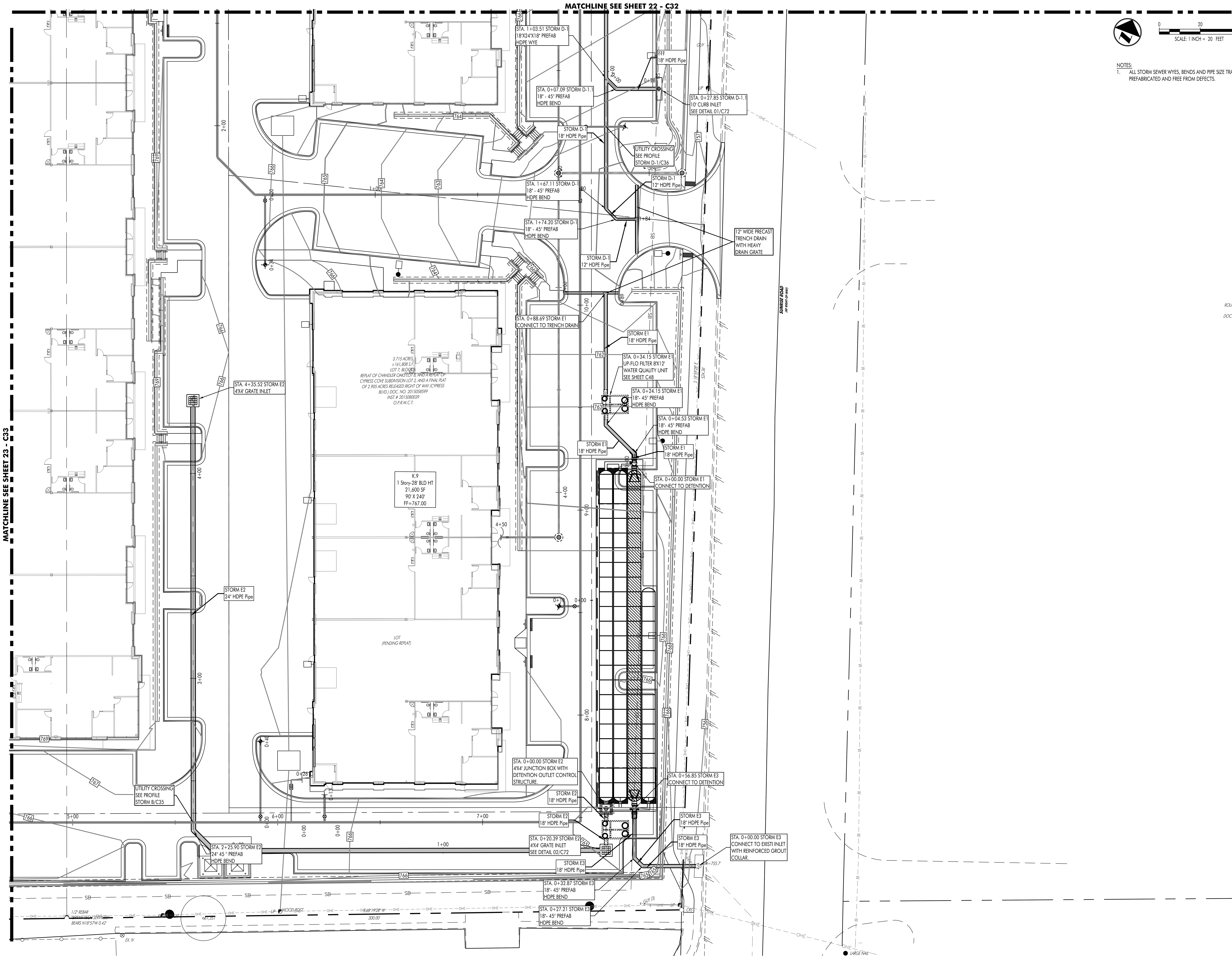

NOTES:
1. ALL STORM SEWER WYES, BENDS AND PIPE SIZE TRANSITIONS SHALL BE PREFABRICATED AND FREE FROM DEFECTS.

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Architecture & Interiors

1608 W 5th St.
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(512) 473.8989
Austin, Texas
78703
studio8architects.com

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11.04.2022

HAGOOD ENGINEERING ASSOCIATES
900 E. Main Street
Round Rock, TX 78664
Phone (512) 244-1546
Fax (512) 244-1010
www.heaeng.com
TBPE Reg. No. F-12709

STATE OF TEXAS
TERRY R. HAGOOD
52960
REGISTERED PROFESSIONAL ENGINEER

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DATE SIGNED: 4/30/2023
ISSUED FOR: AGENCY REVIEW

Eagles Nest 3
Lot KE - Bldgs. 6-9

3259 Eagles Nest St.
Round Rock, Texas,
78665

Issue

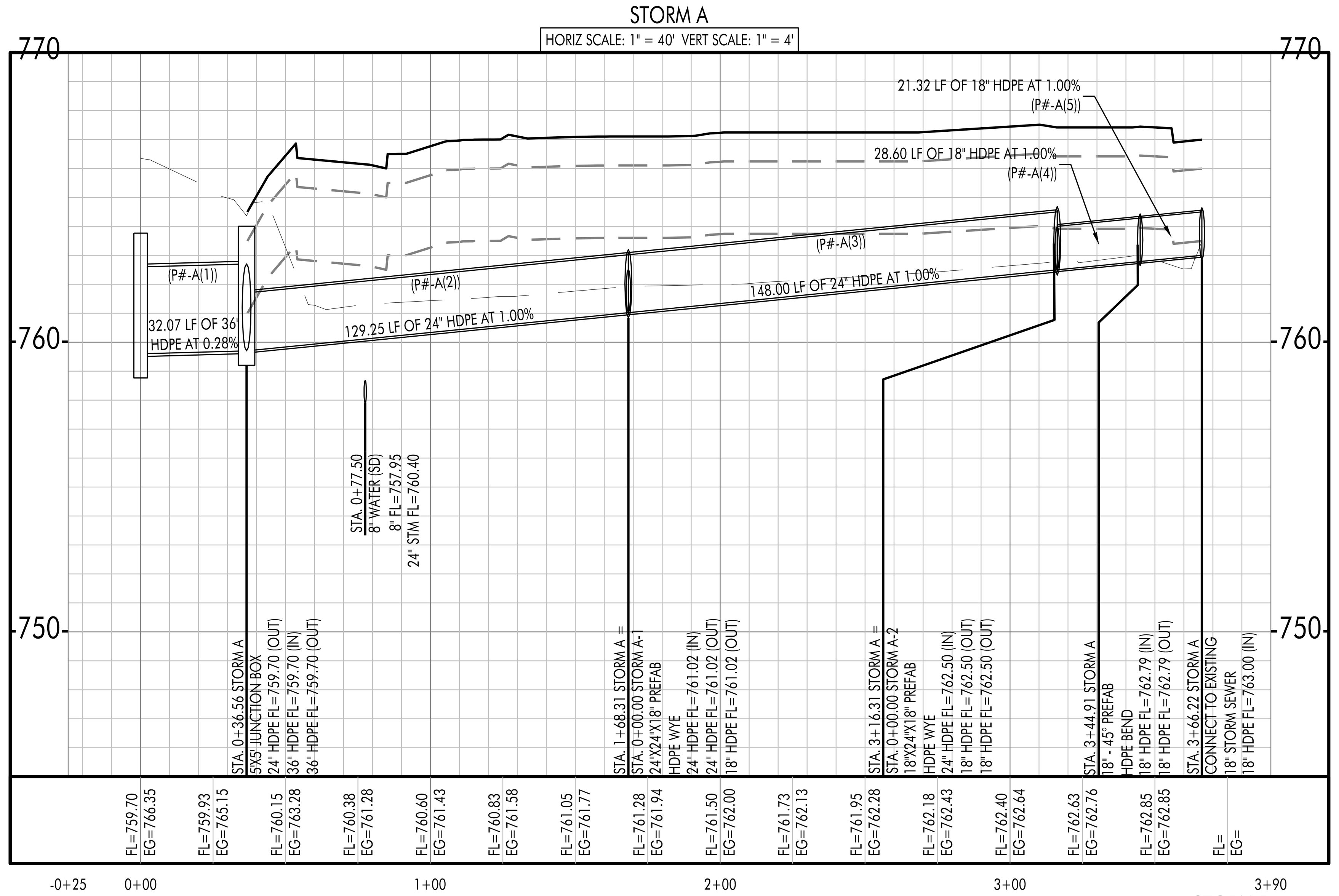
1	09.23.2022	50% CD - Pricing
2	11.04.2022	95% CD
3	12.05.2022	CORR/TCEQ
4	4.30.2023	TCEQ UPDATE

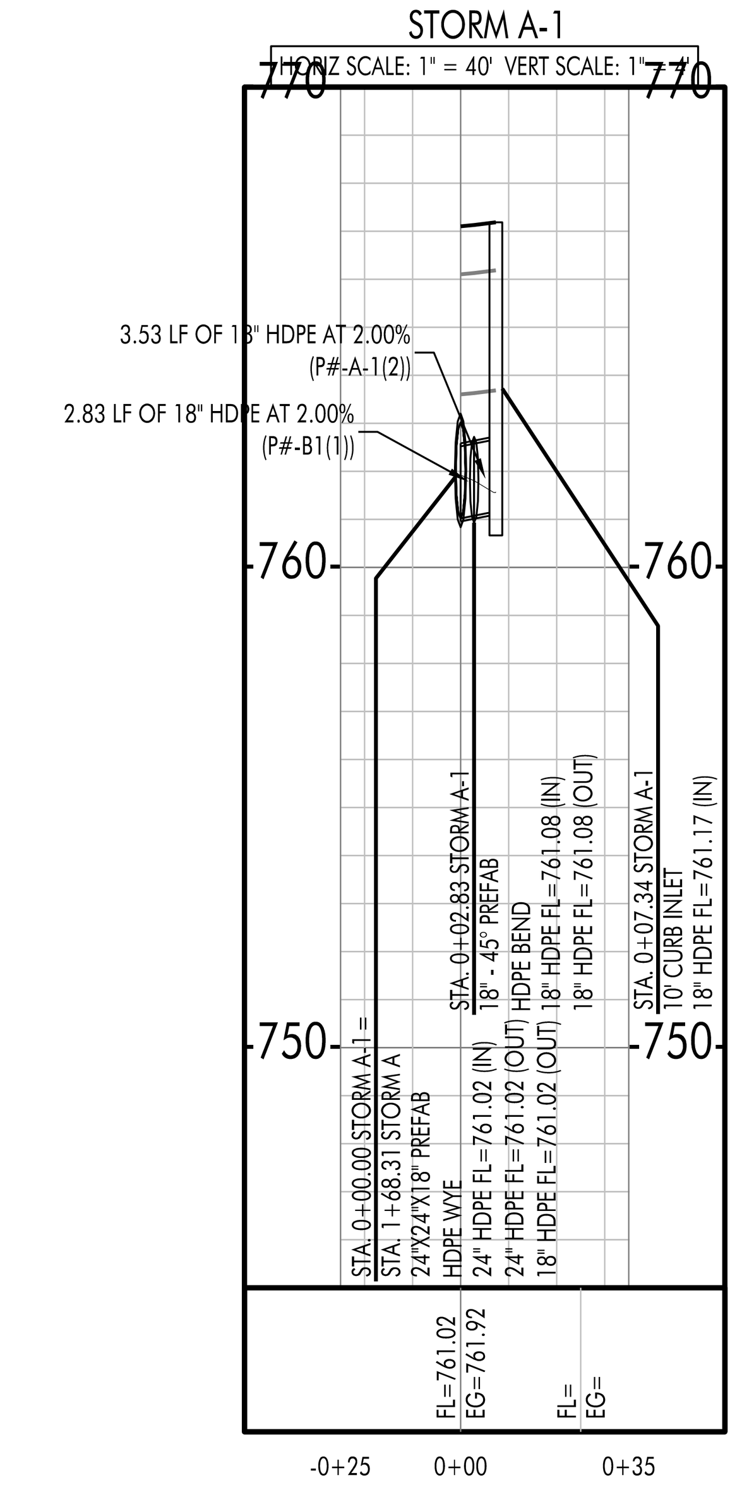
Project Number: 22-019g
Drawn By: JSR
Checked By: RB

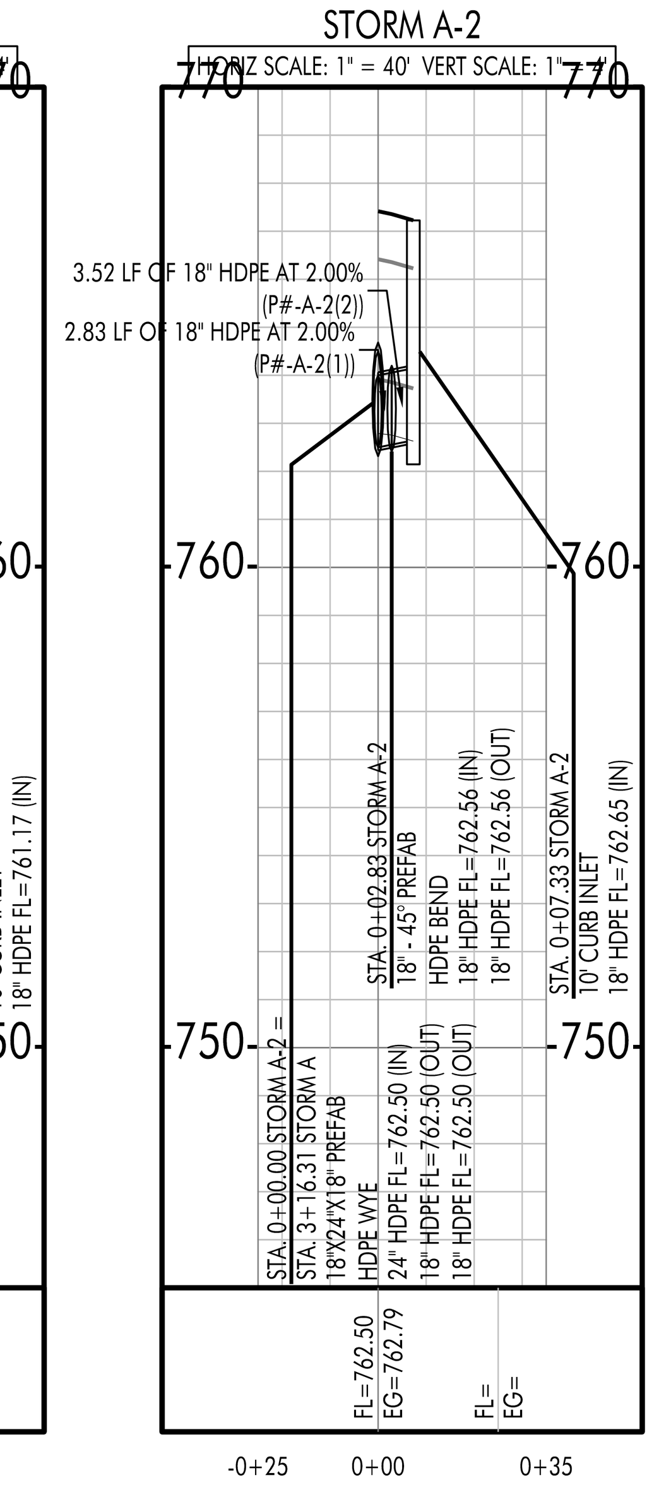
DRAINAGE PLAN

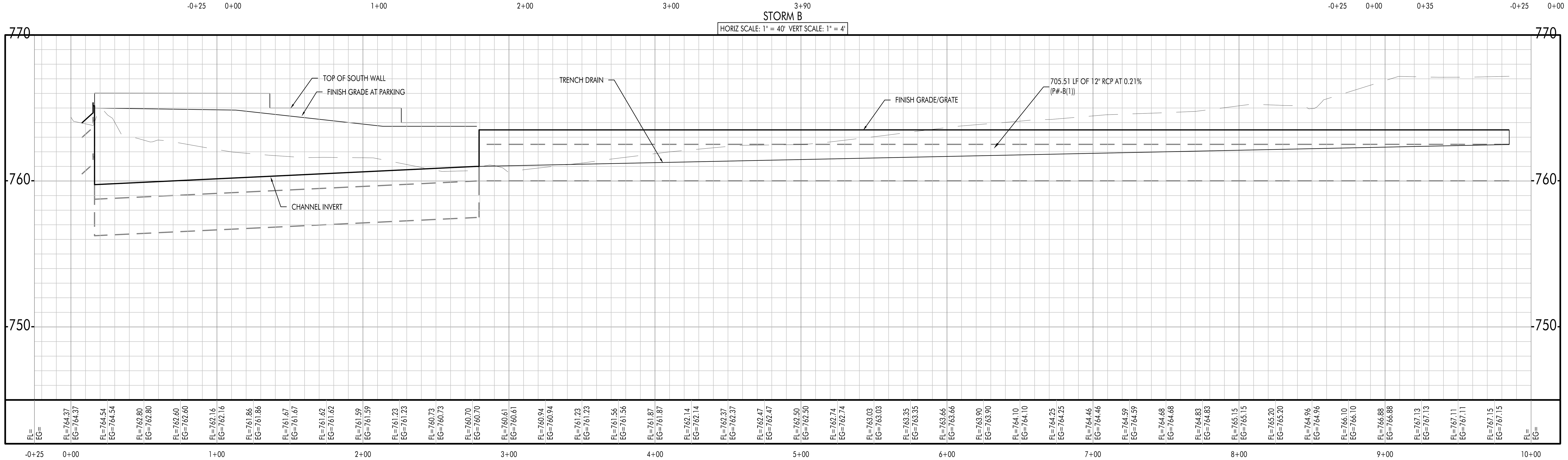
C34

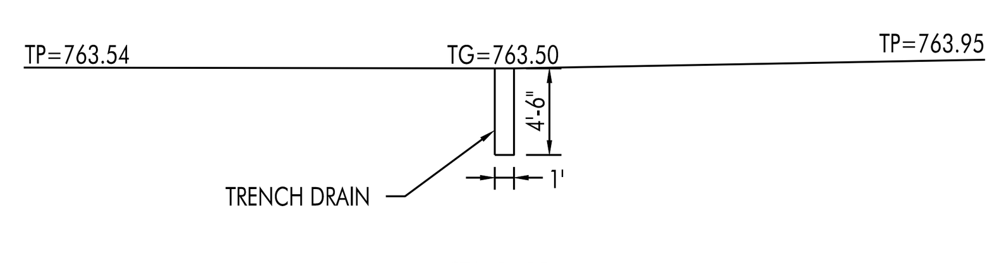
SDP2208-0002

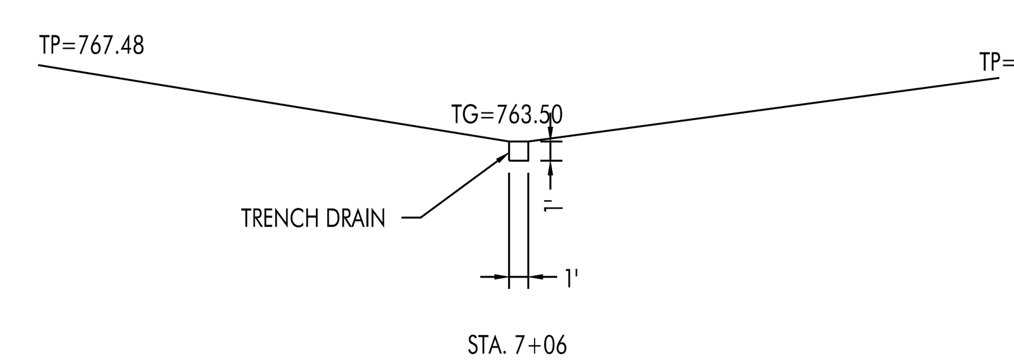












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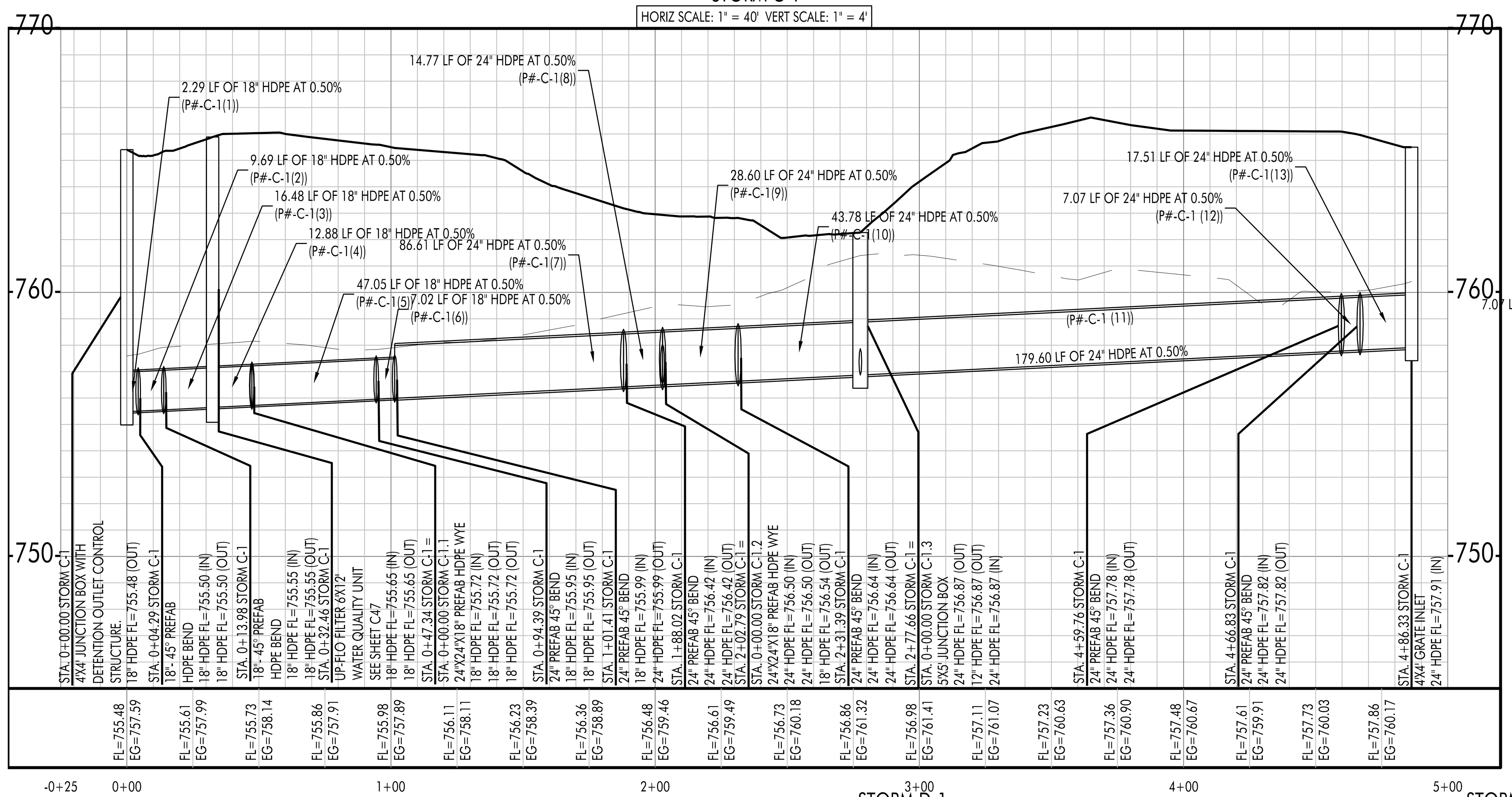
Project Number: 22-019g
Drawn By: JSR
Checked By: RB

STORM PROFILES

C35

STORM C-1



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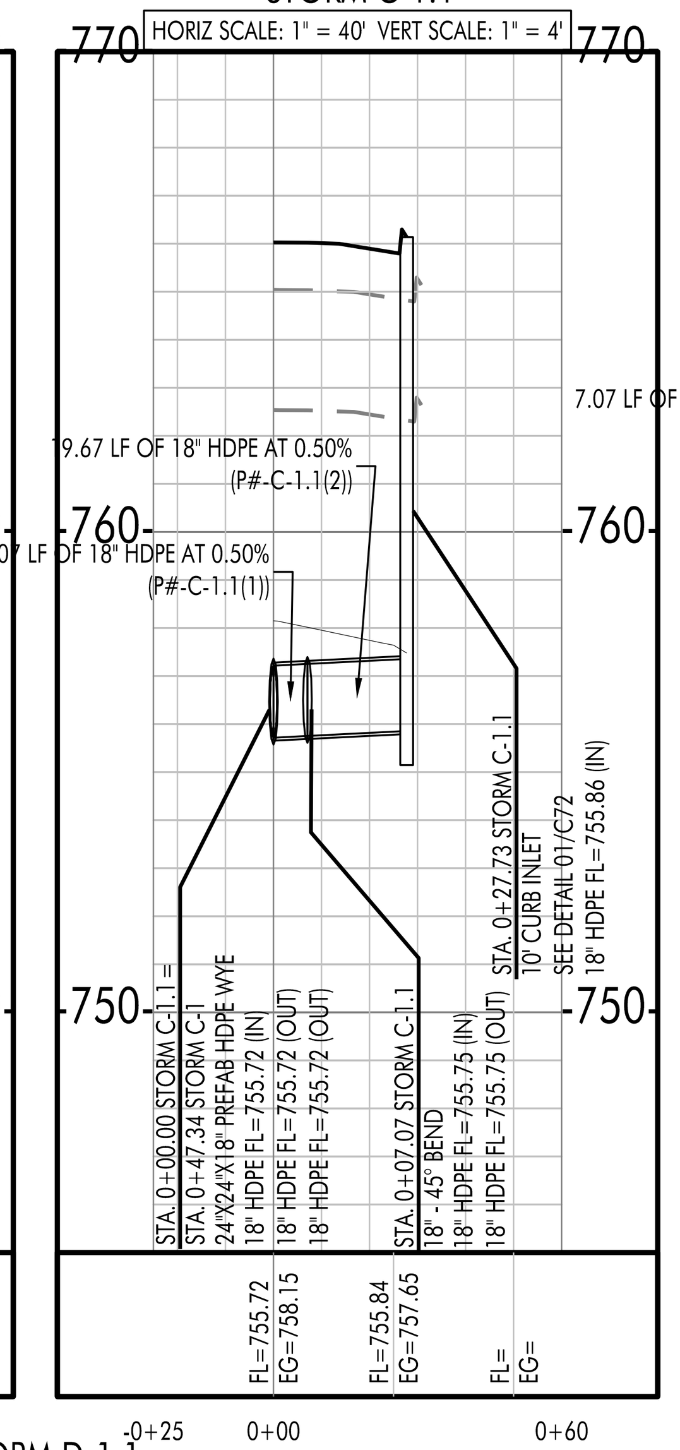
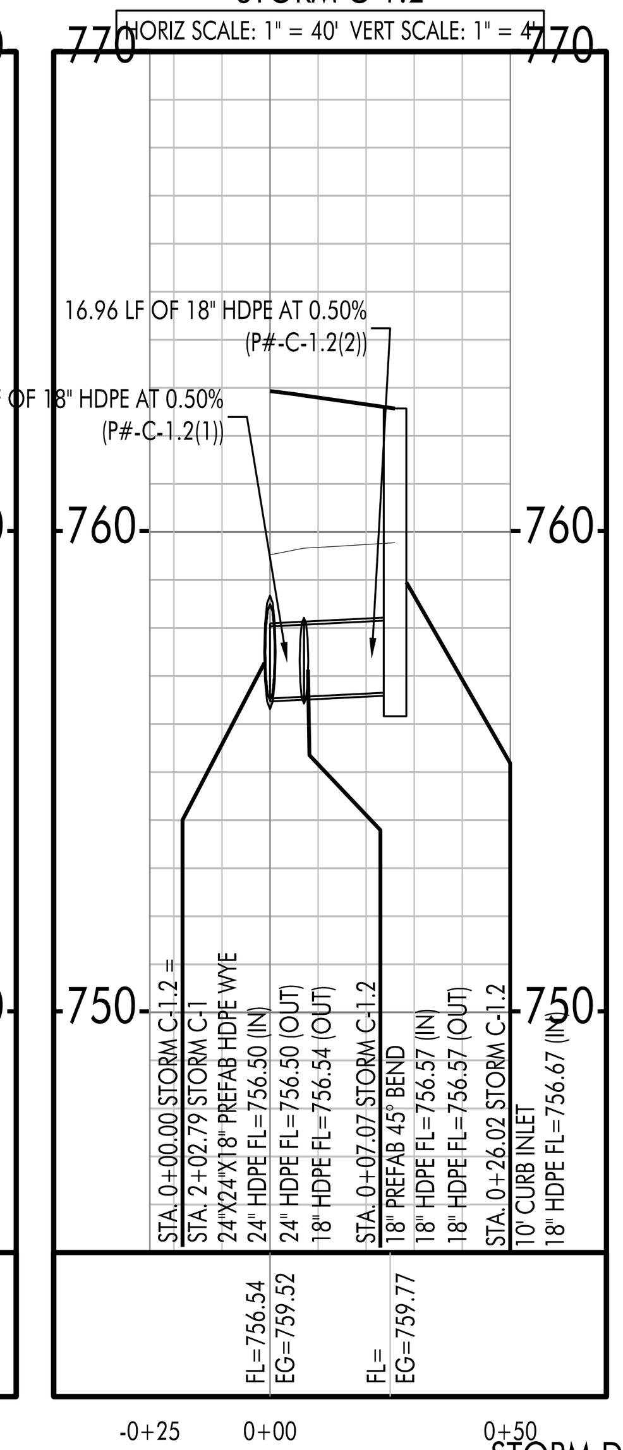


STORM C-1.2



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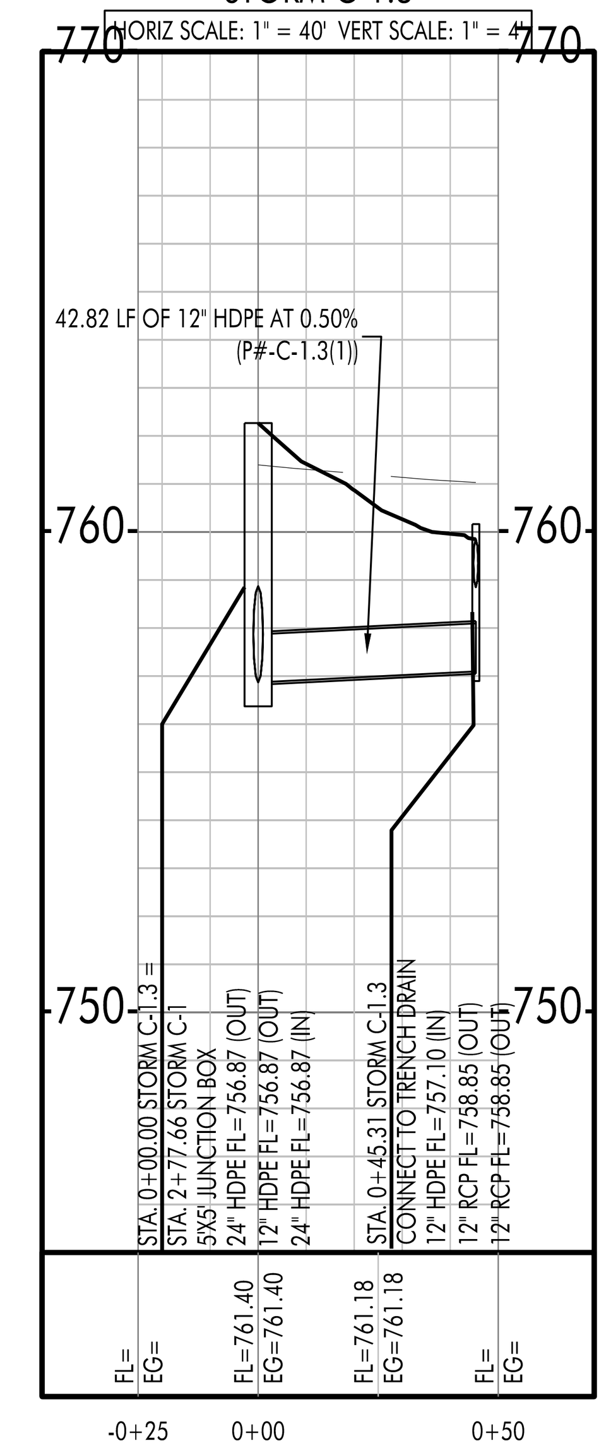
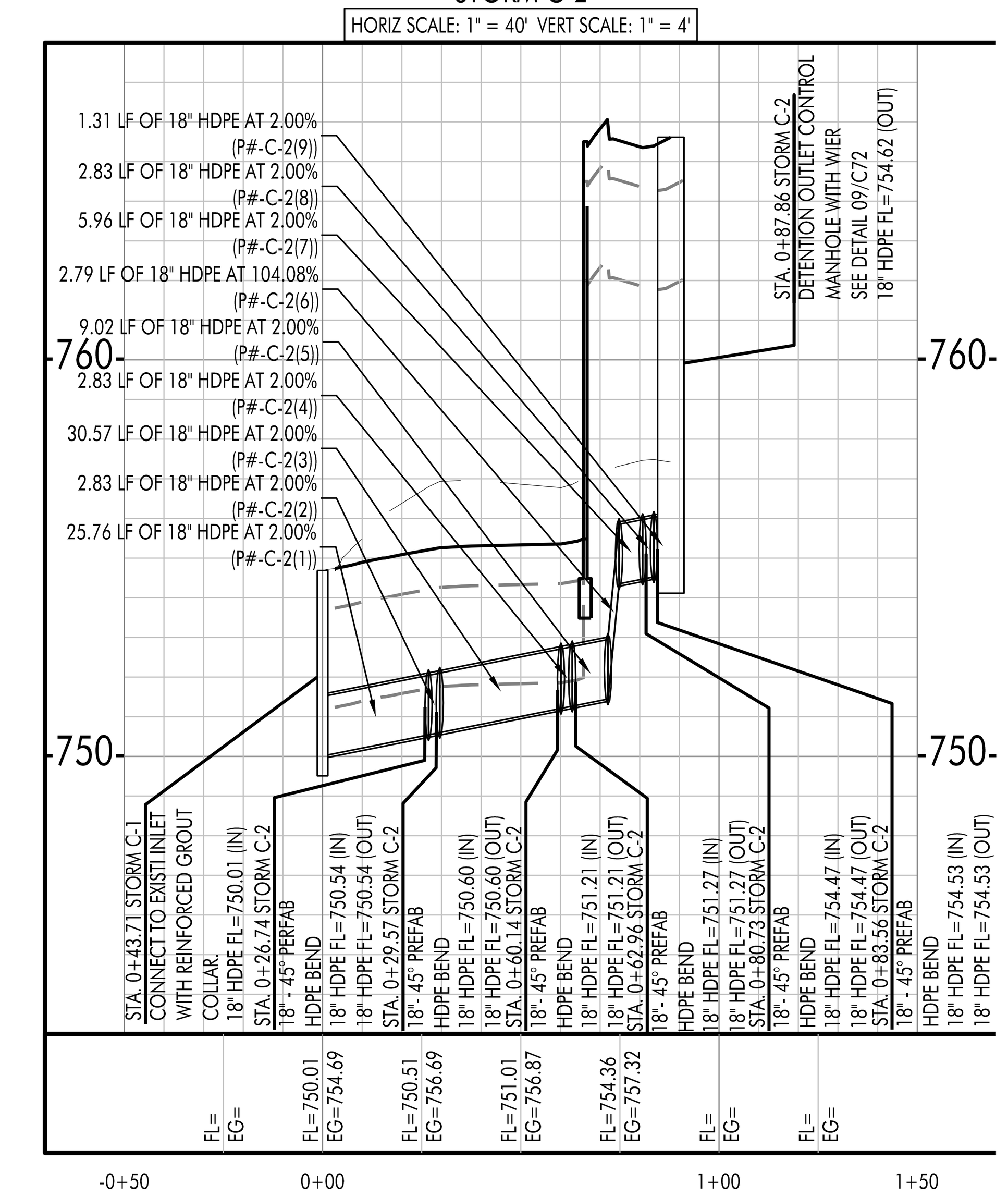


STORM C-2



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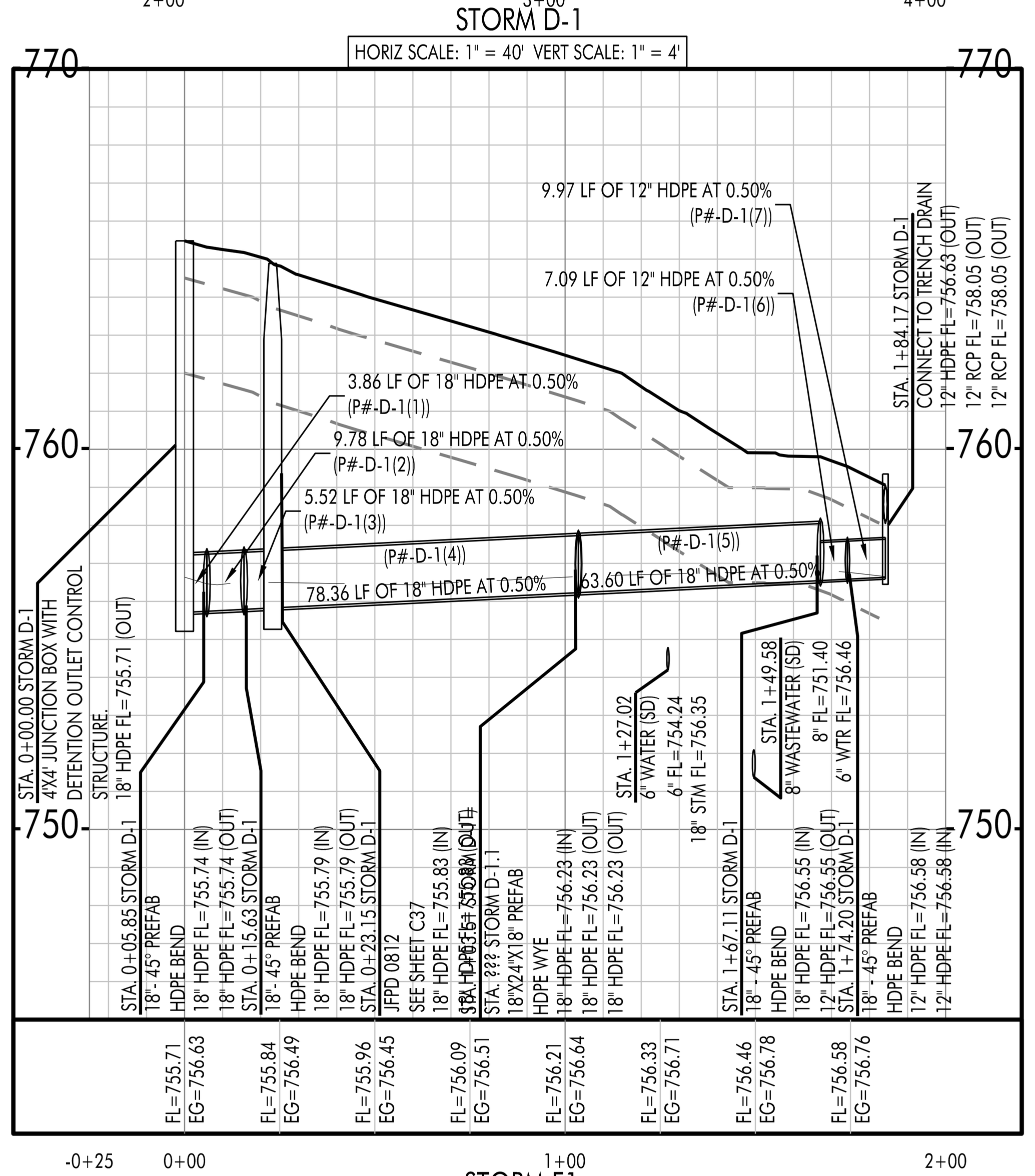

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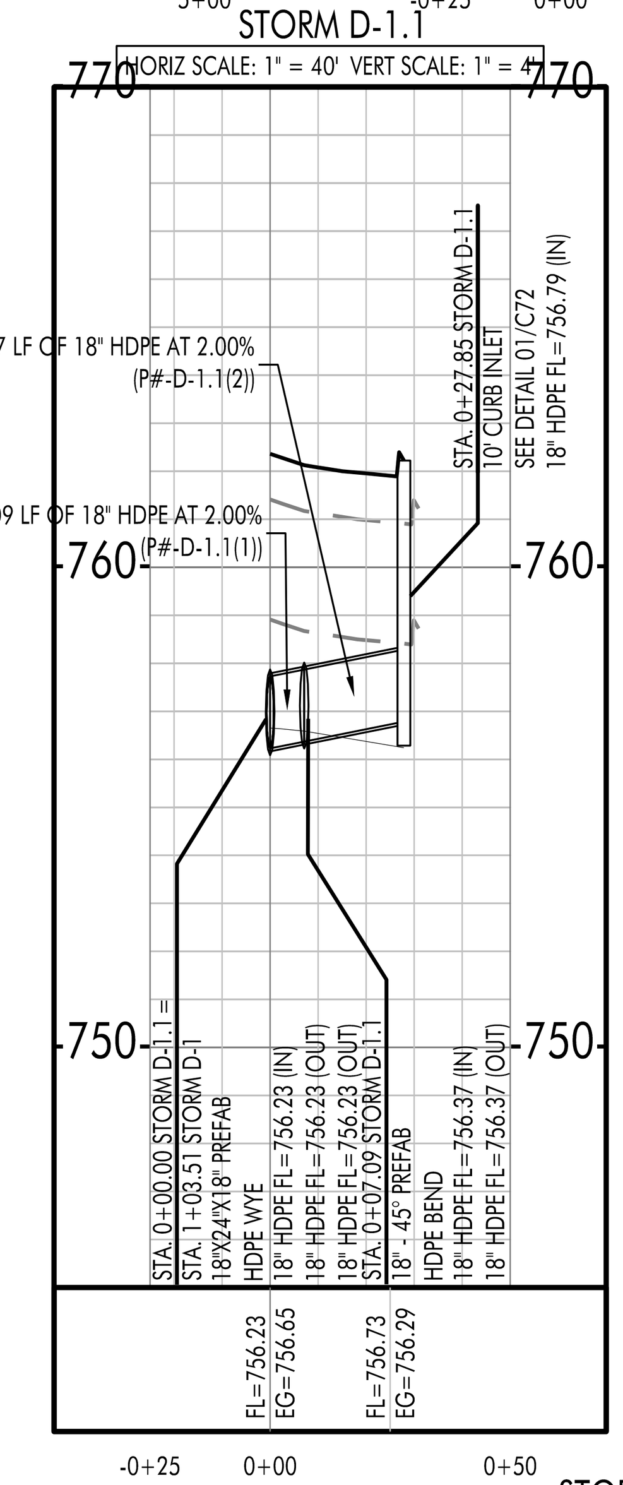

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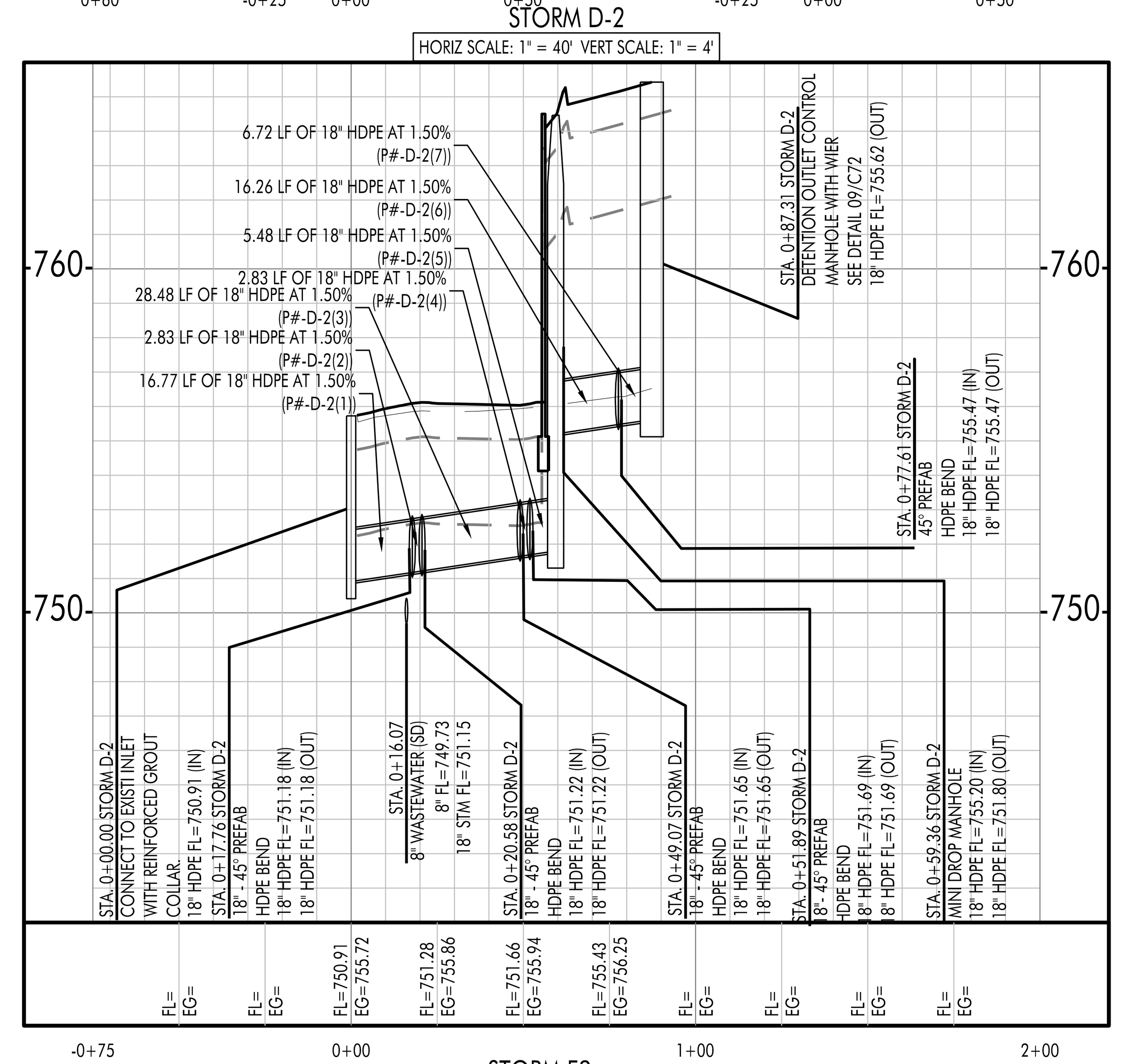

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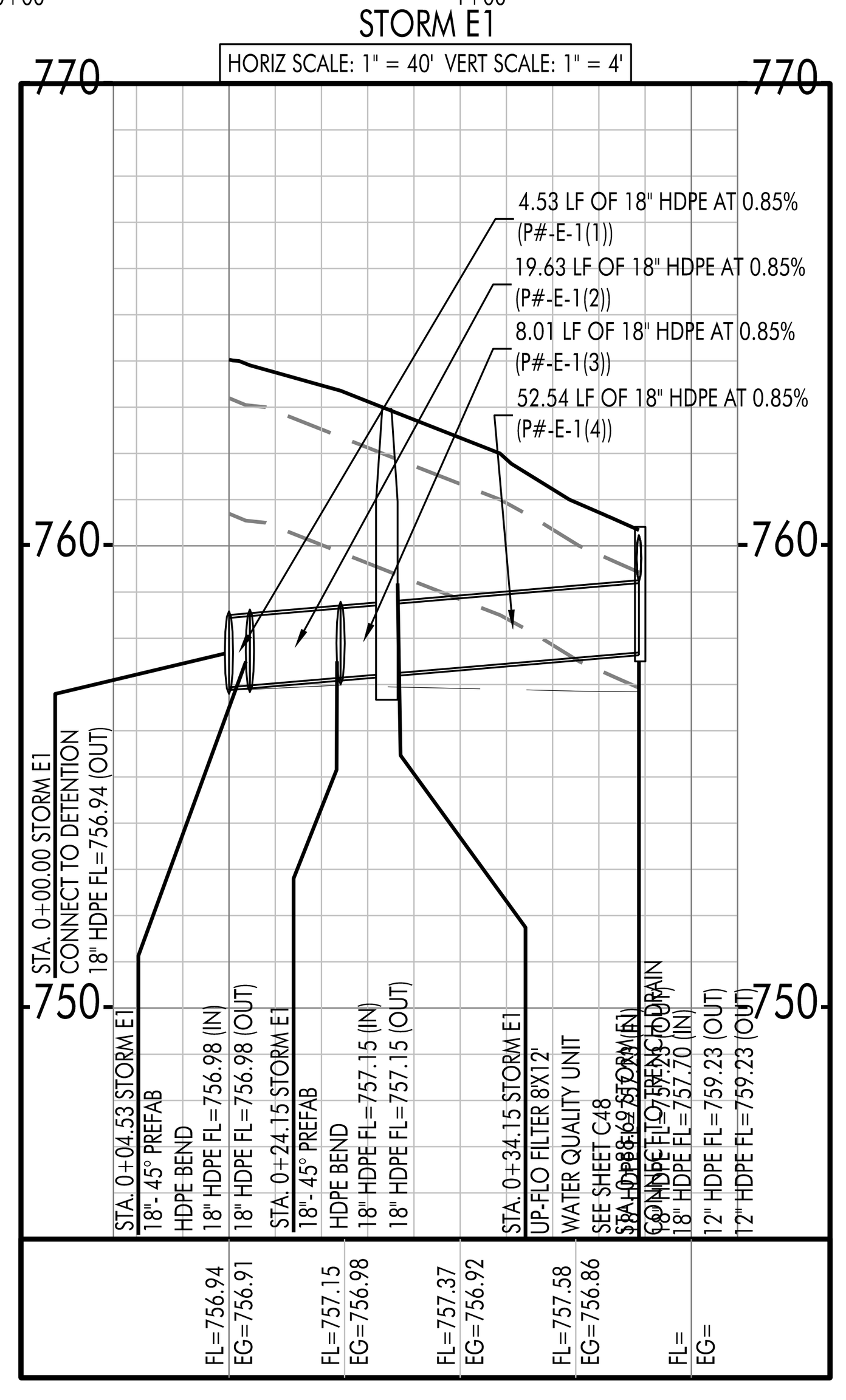
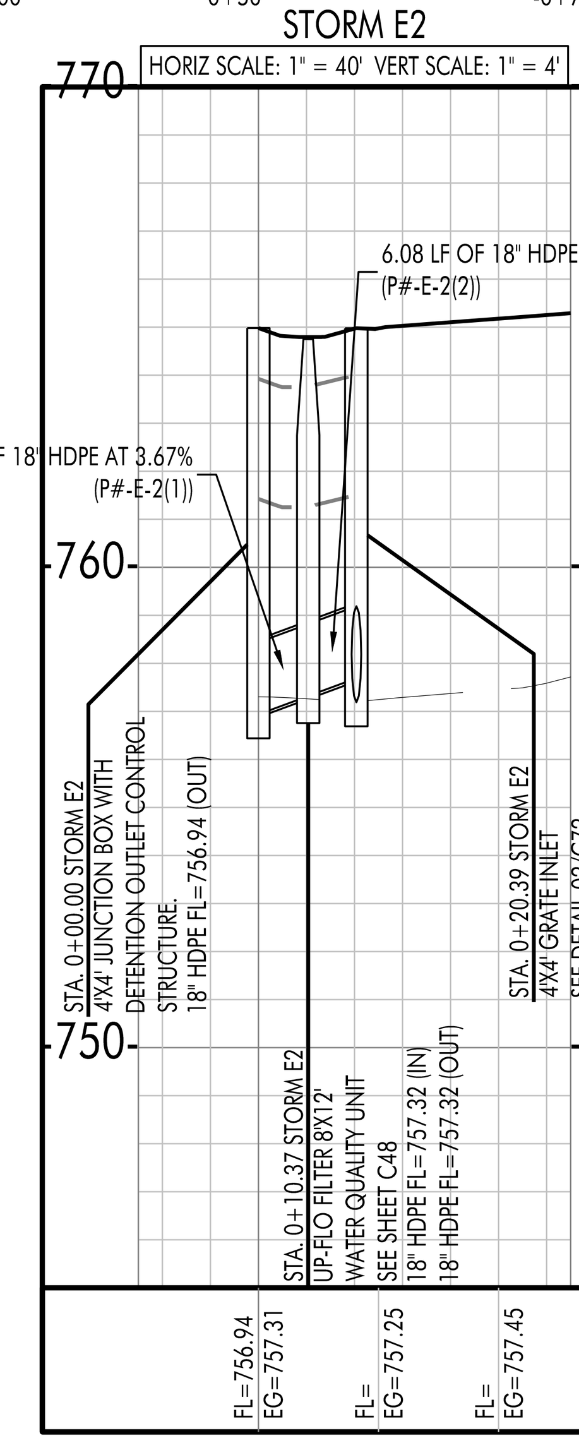


STORM E2



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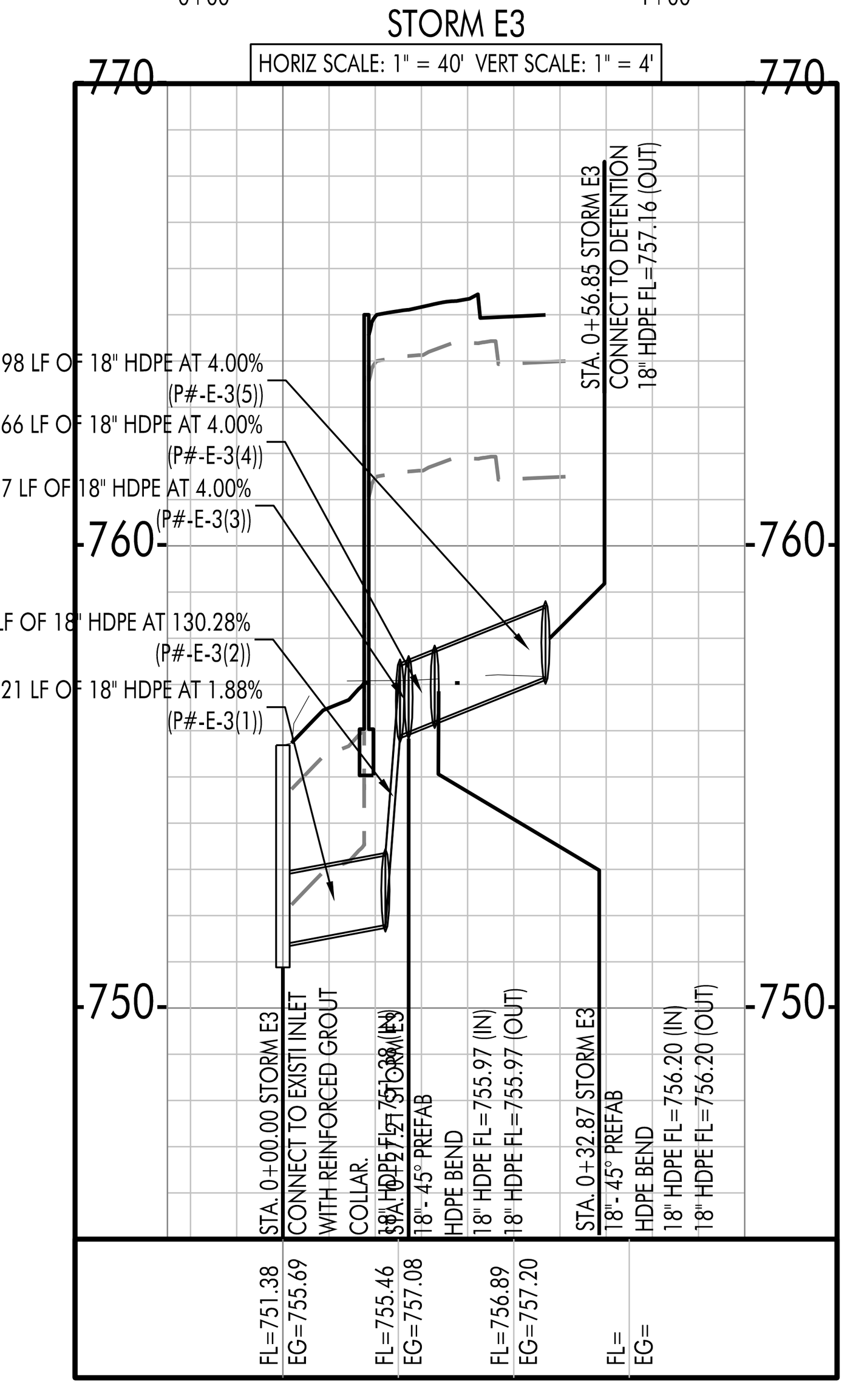

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Project Number: 22-019g
Drawn By: JSR
Checked By: RB

STORM PROFILES

C36

SDP2208-0002

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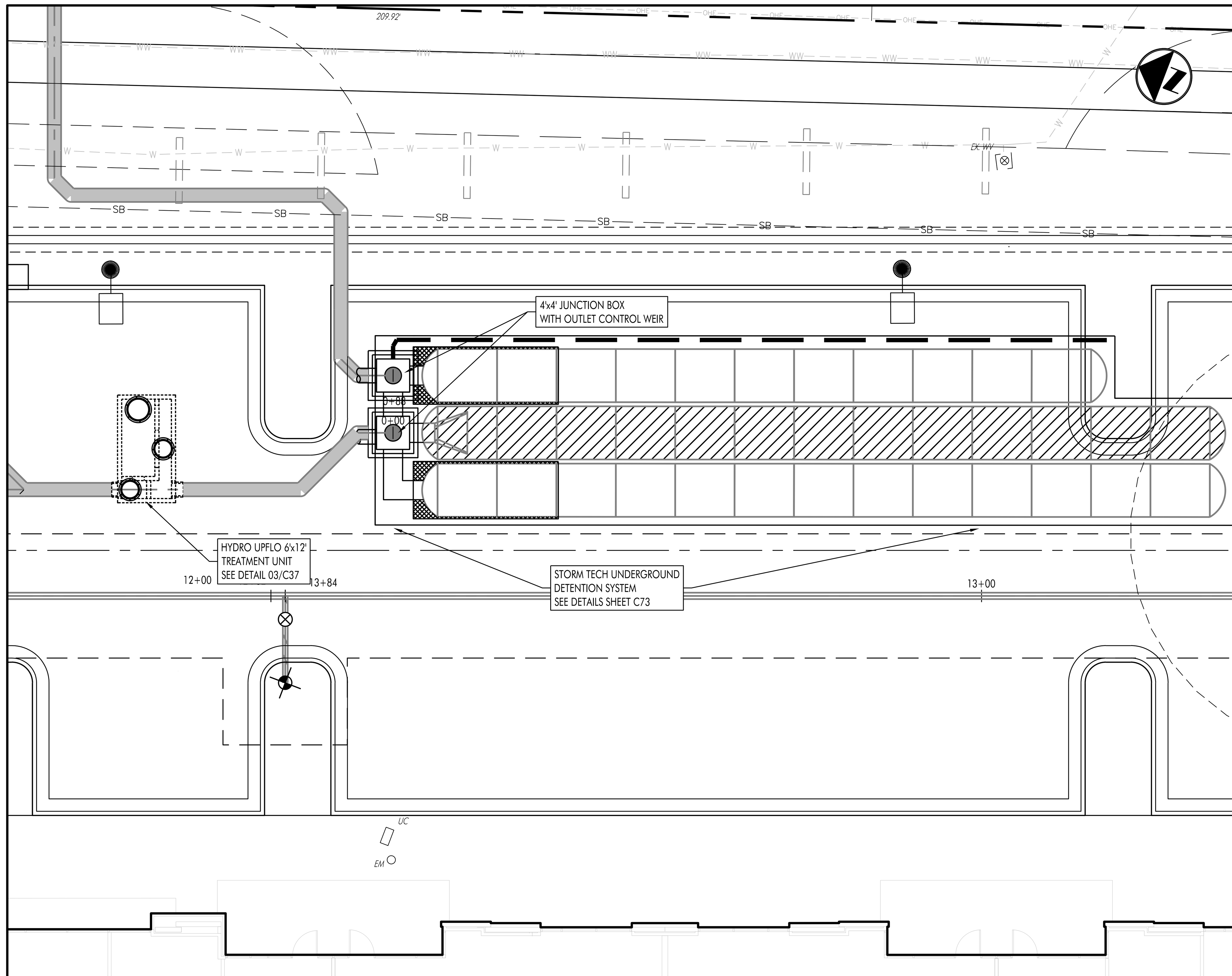
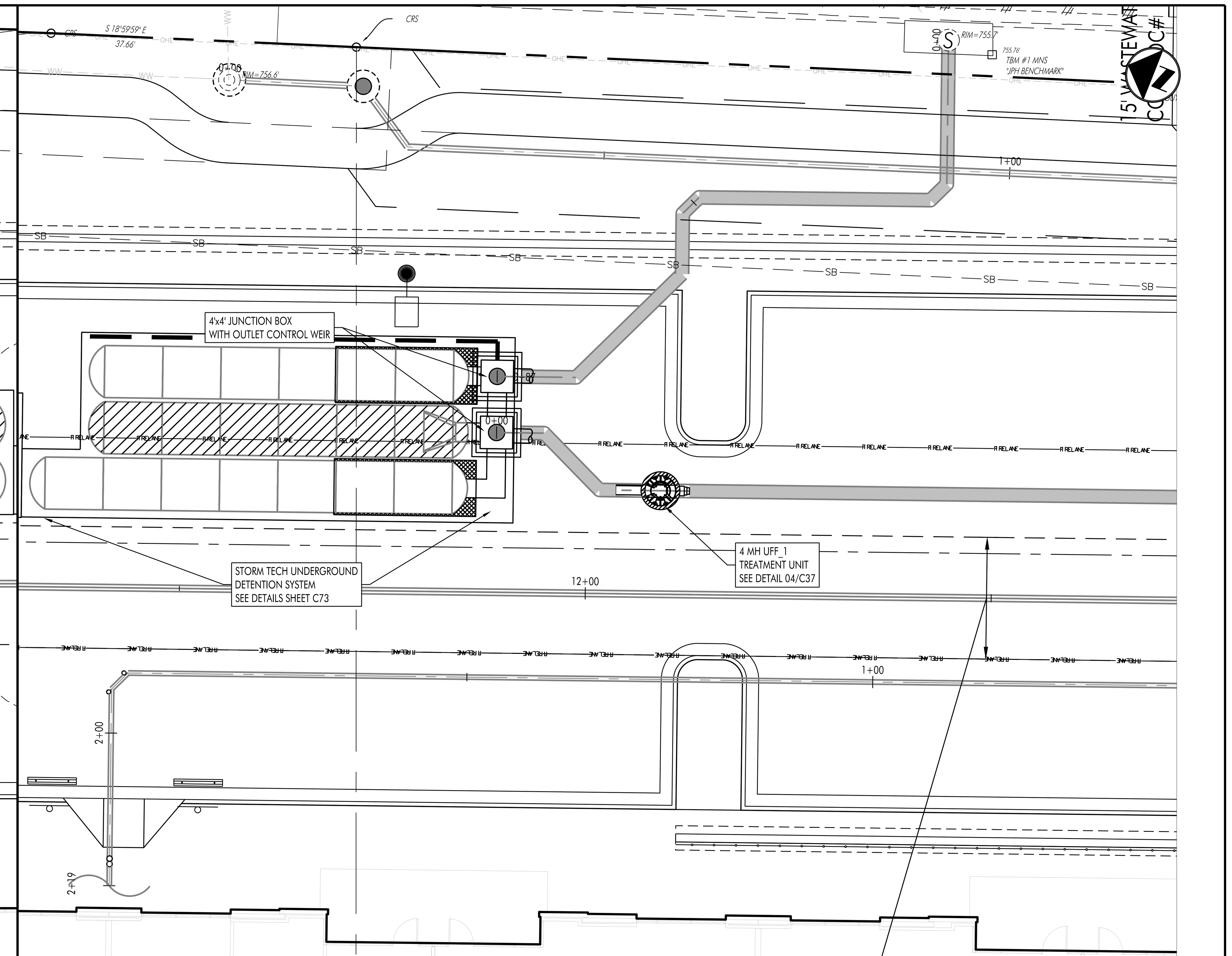
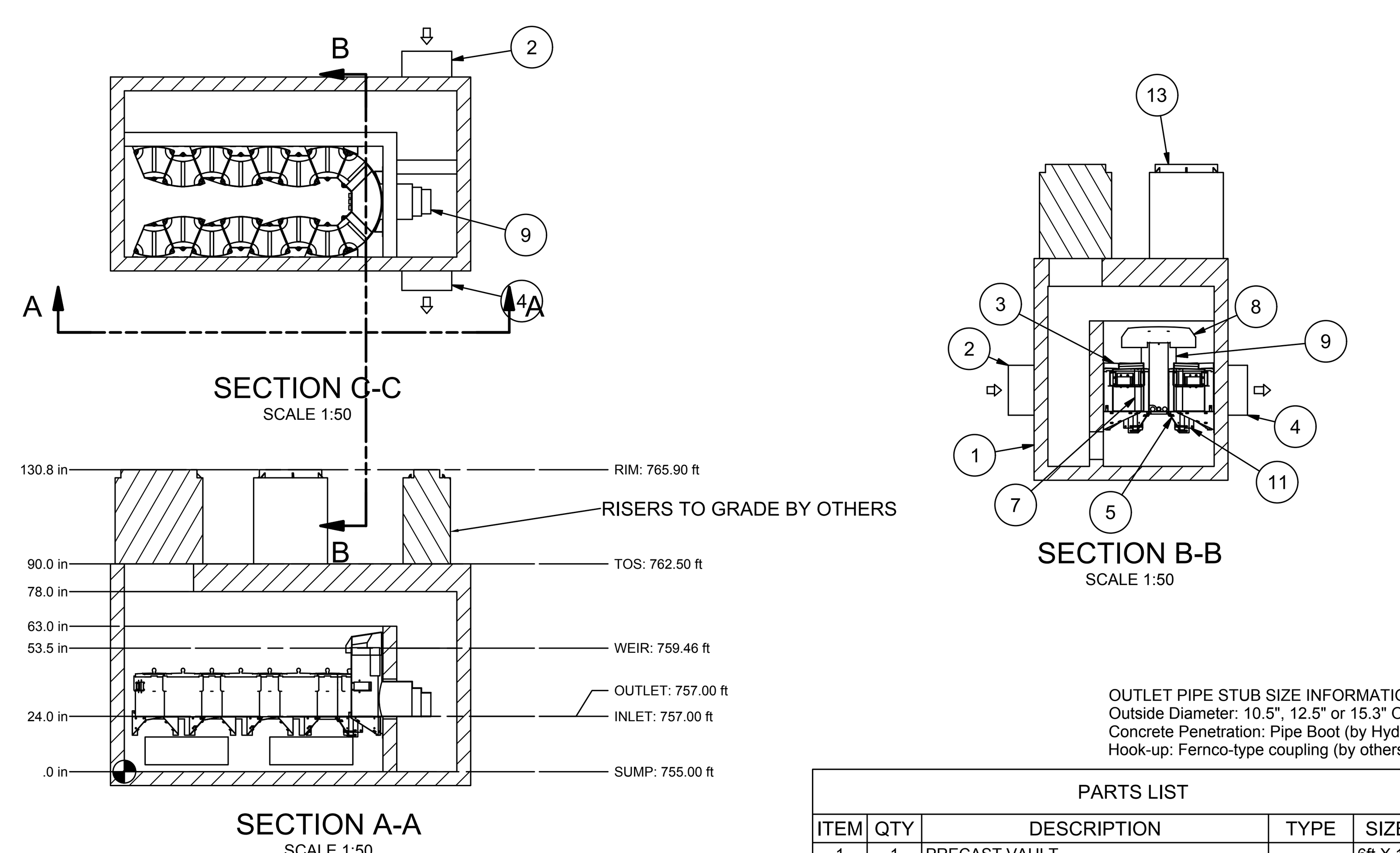


01 WATER QUALITY / DETENTION SYSTEM 200
1" = 10'



02 WATER QUALITY / DETENTION SYSTEM 300
1" = 10'



1. STRUCTURE WALL AND SLAB THICKNESS ARE NOT TO SCALE.
2. CONTACT HYDRO INTERNATIONAL FOR A BOTTOM OF STRUCTURE ELEVATION PRIOR TO SETTING THE STRUCTURE.
3. CONTRACTOR TO CONFIRM RIM, PIPE INVERTS, PIPE DIA. AND PIPE ORIENTATION PRIOR TO RELEASE OF UNIT TO FABRICATION.
4. CONTRACTOR IS RESPONSIBLE FOR MATERIALS AND LABOR TO BRING CASTINGS TO FINISHED GRADE
5. ACTUAL DEPTH OF STRUCTURE MAY VARY DEPENDING ON AVAILABLE PRECAST FORMS. CONTRACTOR TO MEASURE HEIGHT OF STRUCTURE TO ENSURE THAT DEPTH OF EXCAVATION IS CORRECT.
6. UNIT MUST BE INSTALLED ON A LEVEL BASE. MANUFACTURER RECOMMENDS A MINIMUM OF 6" LEVEL ROCK BASE UNLESS SPECIFIED. CONTRACTOR IS RESPONSIBLE TO VERIFY BASE SPECIFICATIONS.
7. ALL PIPES SHALL BE SEALED WATERTIGHT WITH A NON-SHRINK GROUT OR BOOTS AND SHALL MEET OR EXCEED REGIONAL PIPE CONNECTION STANDARDS.

REVISION HISTORY			
REV	BY	DESCRIPTION	DATE
A	JDP	UPSIZED TO VAULT	4/24/2023
-	JDP	FIRST RELEASE	12/5/2022

PROJECTION

IF IN DOUBT ASK

DATE: 12/5/2022 SCALE: 1:50
DRAWN BY: JDP CHECKED BY: WCS APPROVED BY:
Title: UP-FLO FILTER 6ft X 12ft
16 MODULES
WQU-E1
EAGLES NEST 3
ROUND ROCK, TX
Patent: www.hydro-int.com/patents

Hydro International
hydro-int.com
©2021 HYDRO INTERNATIONAL

WEIGHT: MATERIAL:
STOCK NUMBER: 2
DRAWING NO.: 22_12_3914-UFF-2
SHEET SIZE: B SHEET: 1 OF 2 Rev: A

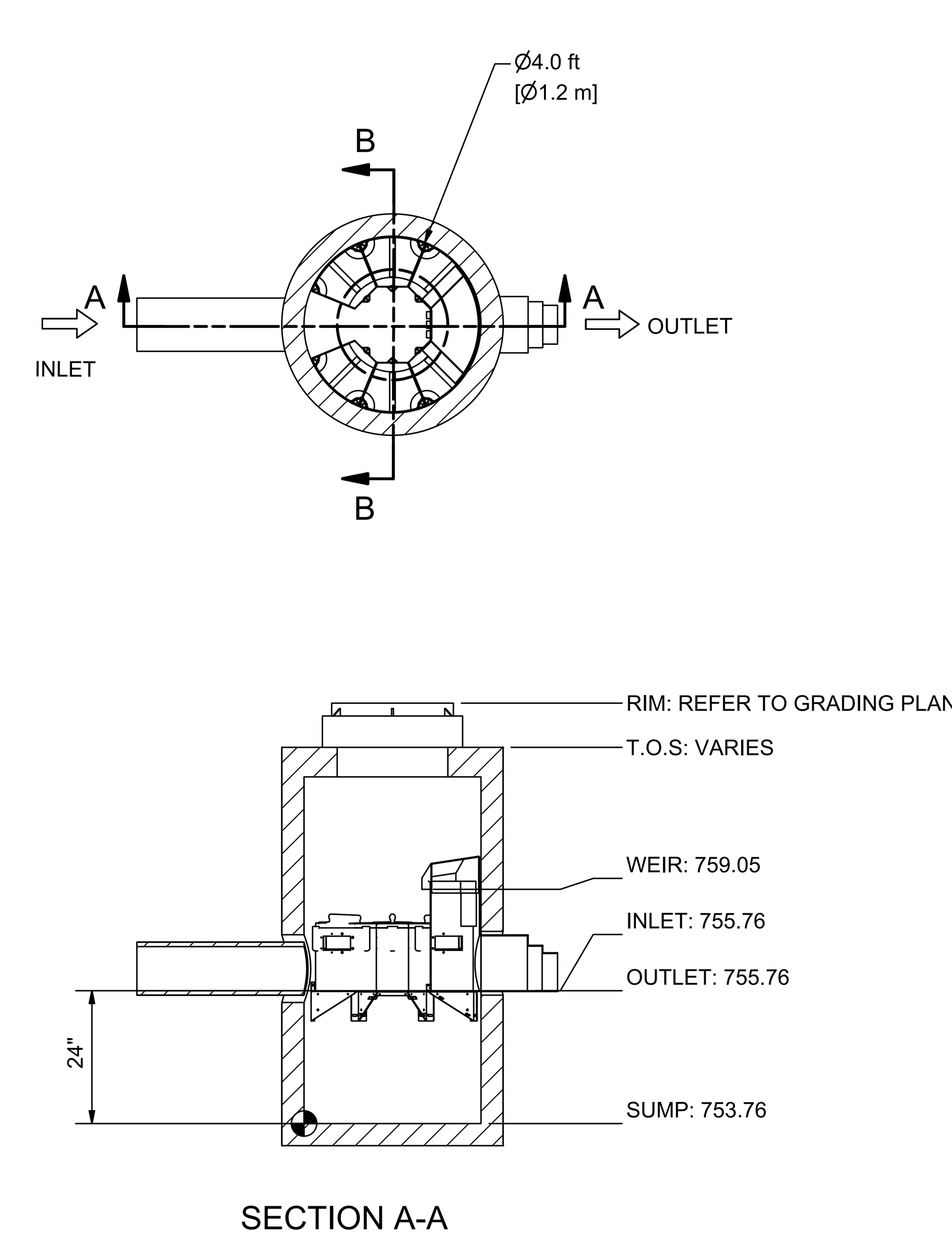
OUTLET PIPE STUB SIZE INFORMATION
Outside Diameter: 10.5", 12.5" or 15.3" OD
Concrete Penetration: Pipe Boot (by Hydro)
Hook-up: Fernco-type coupling (by others)

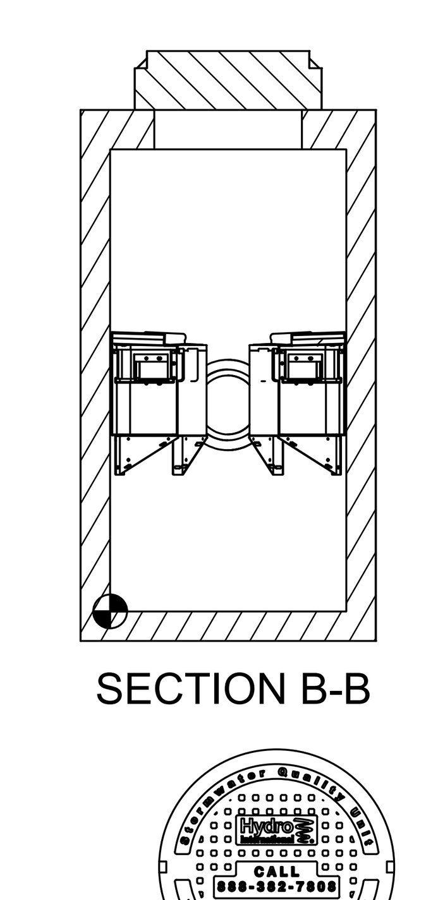
PARTS LIST				
ITEM	QTY	DESCRIPTION	TYPE	SIZE (in)
1	1	PRECAST VAULT		6ft X 12ft
2	1	UFF INLET PIPE	HDPE	18
3	16	MODULE LID		
4	1	UFF OUTLET PIPE	HDPE	18
5	5	SUPPORT FRAME		
6	1	COVER 30 IN		30
7	16	MODULE BODY		
8	1	BYPASS HOOD-S		
9	1	OUTLET MODULE		
10	3	SUPPORT FRAME LH		
11	4	WEDGE WALL MOUNT		
12	3	SUPPORT FRAME RH		
13	2	COVER 24 IN		24

CAPACITIES:
1. Minimum performance: 80% removal. NJDEP - NJDEP Blend; NJCAT, Sil-Co-Sil 106 (d50 = 22 microns) at the peak treatment flow.
2. Maximum number of modules per outlet module: 38 **
3. NJDEP peak treatment flow: .056 cfs (25 gpm) per module, CPZ

ADDITIONAL DESIGN INFORMATION:
1. * Normal operating W.S.E. is 2.46' above the outlet invert at the peak treatment flow of .056 cfs (25 gpm) per module. For a given flow the head requirement can be reduced by adding additional filters.
2. ** Treatment flows that require more modules will require a larger vault design or different arrangement.
3. Media Types Available: New Jersey - Ribbons; Elsewhere - CPZ
4. Unit shall conform to HS20-44 load ratings.

03 UPFLO TREATMENT UNIT 200
NTS





CAPACITIES:
- Minimum performance: 80% removal. Washington DOE/NJCAT verified at the peak treatment flow.
- Peak treatment flow:
  .033 CFS (0.9 LPS) (15 GPM) per module (Ribbons)
  .022 CFS (0.6 LPS) (10 GPM) per module (Long Ribbons)
  .056 CFS (1.6 LPS) (25 GPM) per module (CPZ)
- Maximum number of ribbon modules per outlet module: 36
- Maximum number of CPZ modules per outlet module: 18 (contract Hydro if more are required)

ADDITIONAL DESIGN INFORMATION:
- Normal operating W.S.E. is 26-30" (660-762mm) above the outlet invert
- Media Types Available: Ribbons, CPZ

DO NOT SCALE DRAWING
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES.

PROJECTION

COMMENTS:
1. STRUCTURE WALL AND SLAB THICKNESSES ARE NOT TO SCALE
2. CONTACT HYDRO INTERNATIONAL FOR A BOTTOM OF STRUCTURE ELEVATION PRIOR TO SETTING THE STRUCTURE
3. NOT FOR CONSTURCION CONTACT HYDRO FOR SITE SPECIFIC DRAWING
4. NOT ALL SIZES AVAILABLE IN ALL AREAS
5. SUMP DEPTH AVAILABLE IN 24" (610mm) CPZ, RIBBONS AND 36" (914mm) LONG RIBBONS DEPTH

REVISION HISTORY			
REV	BY	DESCRIPTION	DATE
-	ER	FIRST RELEASE	6/17/2019

DATE: 6/17/2019 SCALE: NTS
DRAWN BY: ER CHECKED BY: APPROVED BY
Title: UP-FLO FILTER 4ft Manhole
6 MODULES MAX

Sizing Tool

Hydro International
94 Hutchins Drive
Portland, ME 04102
Tel: +1 (207) 756-6200
Fax: +1 (207) 756-6212
hydro-int.com

WEIGHT: N/A MATERIAL:
NEXT ASSEMBLY: 4 MH-1
DRAWING NO.: 4 MH-UFF-1
SHEET SIZE: B SHEET: 1 OF 1 Rev: -

04 UPFLO TREATMENT UNIT 300
NTS

Eagles Nest 3 Lot KE - Bldgs. 6-9
3259 Eagles Nest St.
Round Rock, Texas,
78665

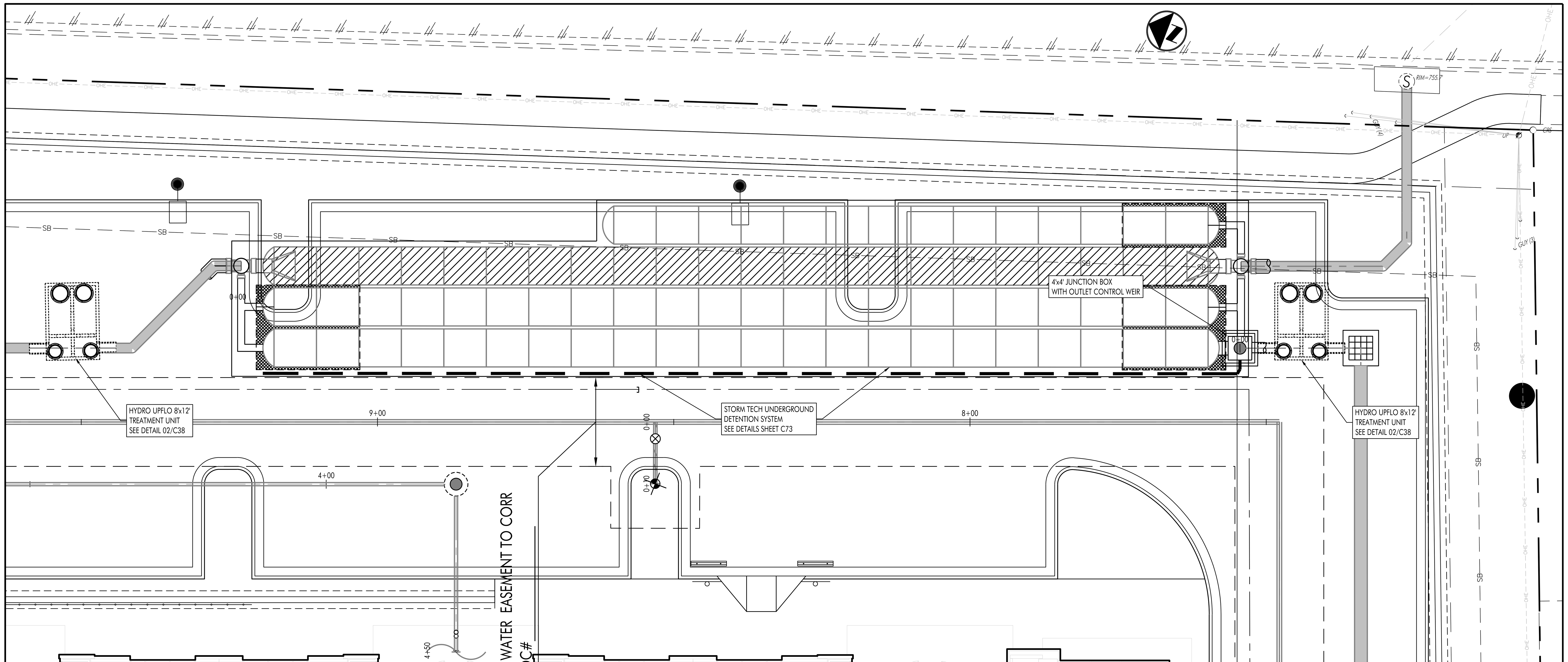
Issue

1	09.23.2022	50% CD - Pricing
2	11.04.2022	95% CD
3	12.05.2022	CORR/TCEQ
4	4.30.2023	TCEQ UPDATE

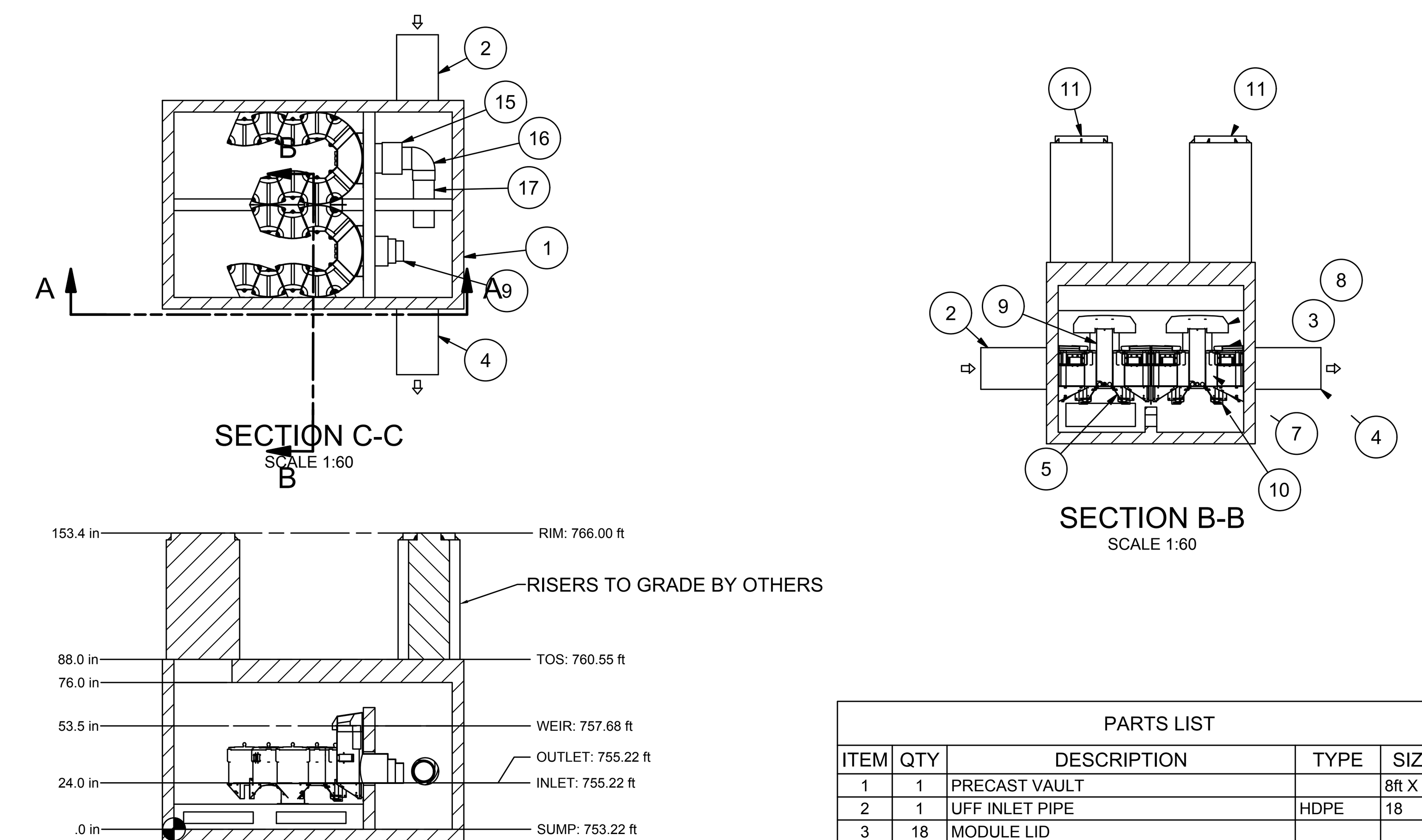
Project Number: 22-019g
Drawn By: JSR
Checked By: RB

DRAINAGE FEATURES

C37



01 | WATER QUALITY / DETENTION SYSEM 400 | 1" = 10'



SECTION A-A
SCALE 1:60

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CAPACITIES:
1. Minimum performance: 80% removal. NJDEP - NJDEP Blend; NJCAT, Sil-Co-Sil 106 (d50 = 22 microns) at the peak treatment flow.
2. Maximum number of modules per outlet module: 38 **
3. NJDEP peak treatment flow: .056 cfs (25 gpm) per module, CPZ

ADDITIONAL DESIGN INFORMATION:
1. * Normal operating W.S.E. is 2.46' above the outlet invert at the peak treatment flow of .056 cfs (25 gpm) per module. For a given flow the head requirement can be reduced by adding additional filters.
2. ** Treatment flows that require more modules will require a larger vault design or different arrangement.
3. Media Types Available: New Jersey - Ribbons; Elsewhere - CPZ
4. Unit shall conform to HS20-44 load ratings.

PARTS LIST

ITEM	QTY	DESCRIPTION	TYPE	SIZE (in)
1	1	PRECAST VAULT		8ft X 12ft
2	1	UFF INLET PIPE	HDPE	18
3	18	MODULE LID		
4	1	UFF OUTLET PIPE	HDPE	18
5	8	SUPPORT FRAME		
6	2	COVER 30 IN		30
7	18	MODULE BODY		
8	2	BYPASS HOOD-S		
9	2	OUTLET MODULE		
10	6	WEDGE WALL MOUNT		
11	2	COVER 24 IN		24
12	3	SUPPORT FRAME LH		
13	3	SUPPORT FRAME RH		
14	1	FOOT WALL MOUNTING BRACKET	CPZ	
15	1	FERNCO 1056-1515 & 15.2-10.6 EB		
16	1	MCMASTER-CARR 4880K173		
17	1	MCMASTER-CARR 48925K27		

REVISION HISTORY

REV	BY	DESCRIPTION	DATE
A	JDP	UPSIZED VAULT/ MODULE COUNT	4/24/2023
-	WCS	FIRST RELEASE	12/7/2022

PROJECTION

IF IN DOUBT ASK

DATE: 12/7/2022 SCALE: 1:50
DRAWN BY: WCS CHECKED BY: EM APPROVED BY

Title
UP-FLO FILTER
8ft X 12ft

18 MODULES

WQU-C1
EAGLES NEST 3
ROUND ROCK, TX

Patent: www.hydro-int.com/patents

Hydro International
hydro-int.com

WEIGHT: MATERIAL:
STOCK NUMBER: 1
DRAWING NO.: 22_12_3914-UFF-1
SHEET SIZE: B SHEET: 1 OF 2 Rev: A

02 | UPFLO TREATMENT UNIT 400 | NTS

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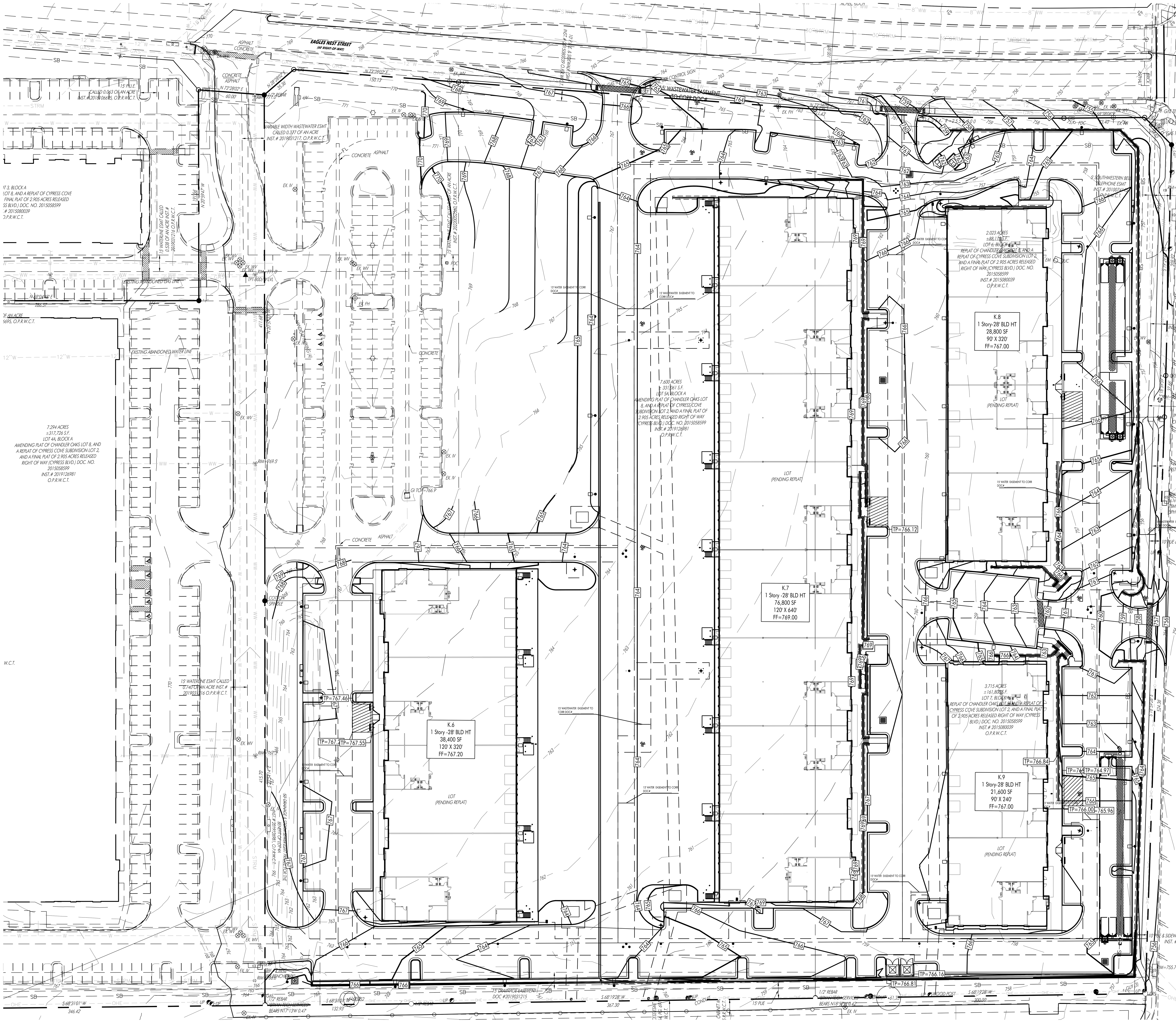
DRAINAGE FEATURES

C38



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3	12.05.2022	CORR/TCEQ
4	4.30.2023	TCEQ UPDATE

Project Number: 22-019g
Drawn By: JSR
Checked By: RB

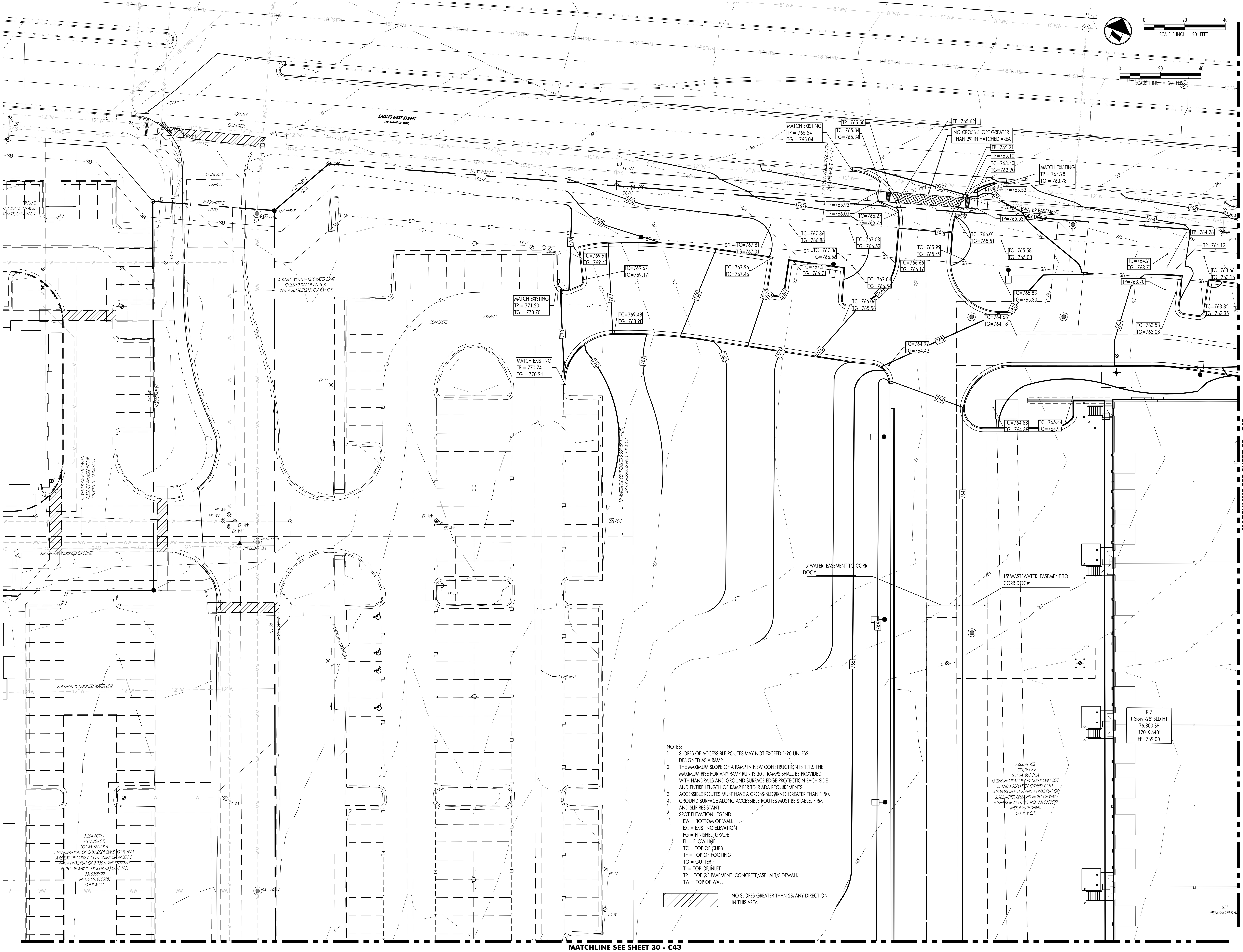
OVERALL GRADING PLAN

C400

38

SDP2208-0002

13-018.2\C400, 4/30/2023 1:41:50 PM, TerryH



NOTES:

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2. THE MAXIMUM SLOPE OF A RAMP IN NEW CONSTRUCTION IS 1:12. THE MAXIMUM RISE FOR ANY RAMP RUN IS 30". RAMPS SHALL BE PROVIDED WITH HANDRAILS AND GROUND SURFACE EDGE PROTECTION EACH SIDE AND ENTIRE LENGTH OF RAMP PER TDLR ADA REQUIREMENTS.
3. ACCESSIBLE ROUTES MUST HAVE A CROSS-SLOPE NO GREATER THAN 1:50.
4. GROUND SURFACE ALONG ACCESSIBLE ROUTES MUST BE STABLE, FIRM AND SLIP RESISTANT.
5. SPOT ELEVATION LEGEND:
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   - TC = TOP OF CURB
   - TF = TOP OF FOOTING
   - TG = GUTTER
   - TI = TOP OF INLET
   - TP = TOP OF PAVEMENT (CONCRETE/ASPHALT/SIDEWALK)
   - TW = TOP OF WALL

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. Eagles Nest 3
Lot KE - Bldgs. 6-9

3259 Eagles Nest St.
Round Rock, Texas,
78665

Issue

1	09.23.2022	50% CD - Pricing
2	11.04.2022	95% CD
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4	4.30.2023	TCEQ UPDATE

Project Number: 22-019g
Drawn By: JSR
Checked By: RB

GRADING PLAN

C401

39

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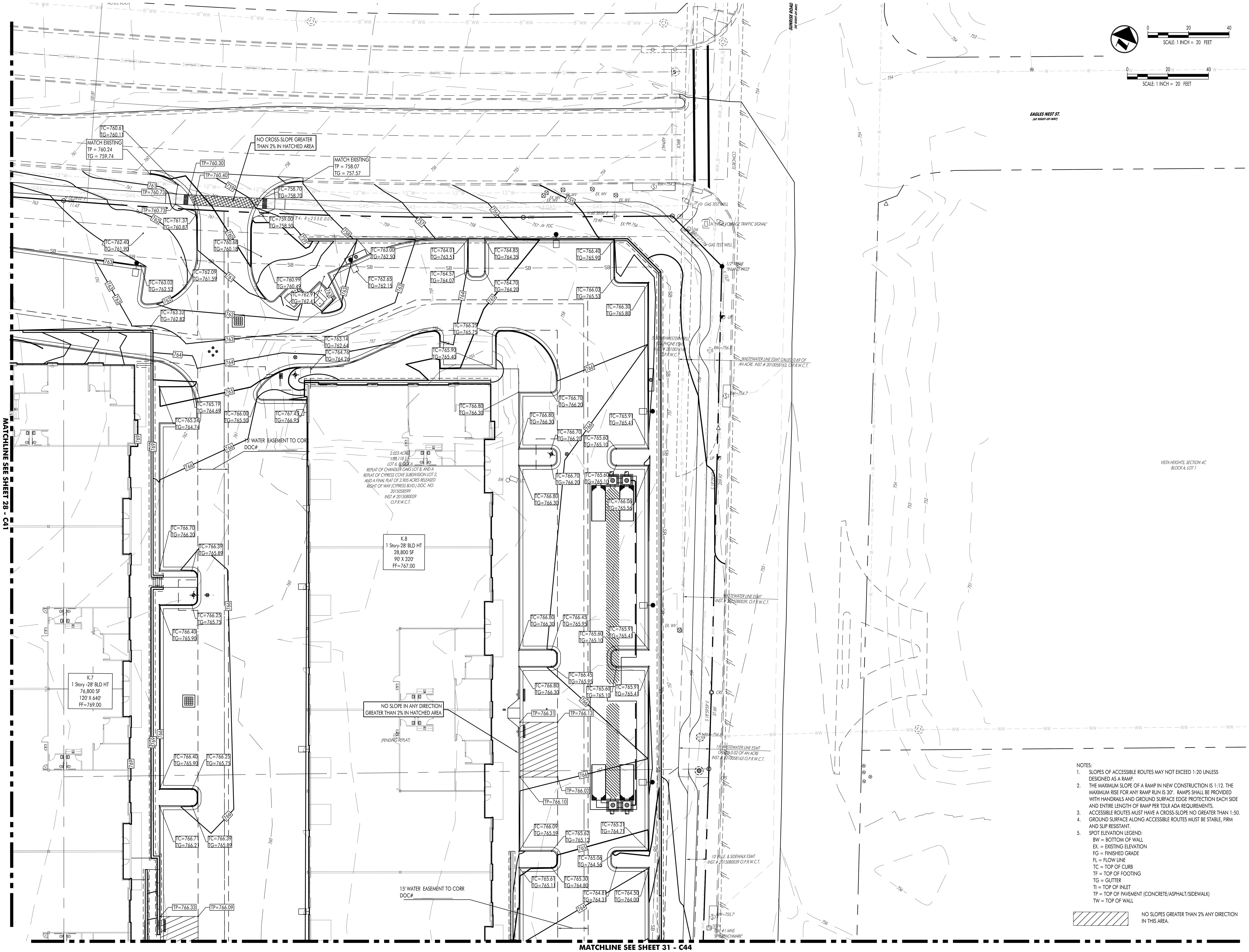
13-018.2C401, 4/30/2023 1:42:01 PM, TerryH



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Project Number: 22-019g
Drawn By: JSR
Checked By: RB

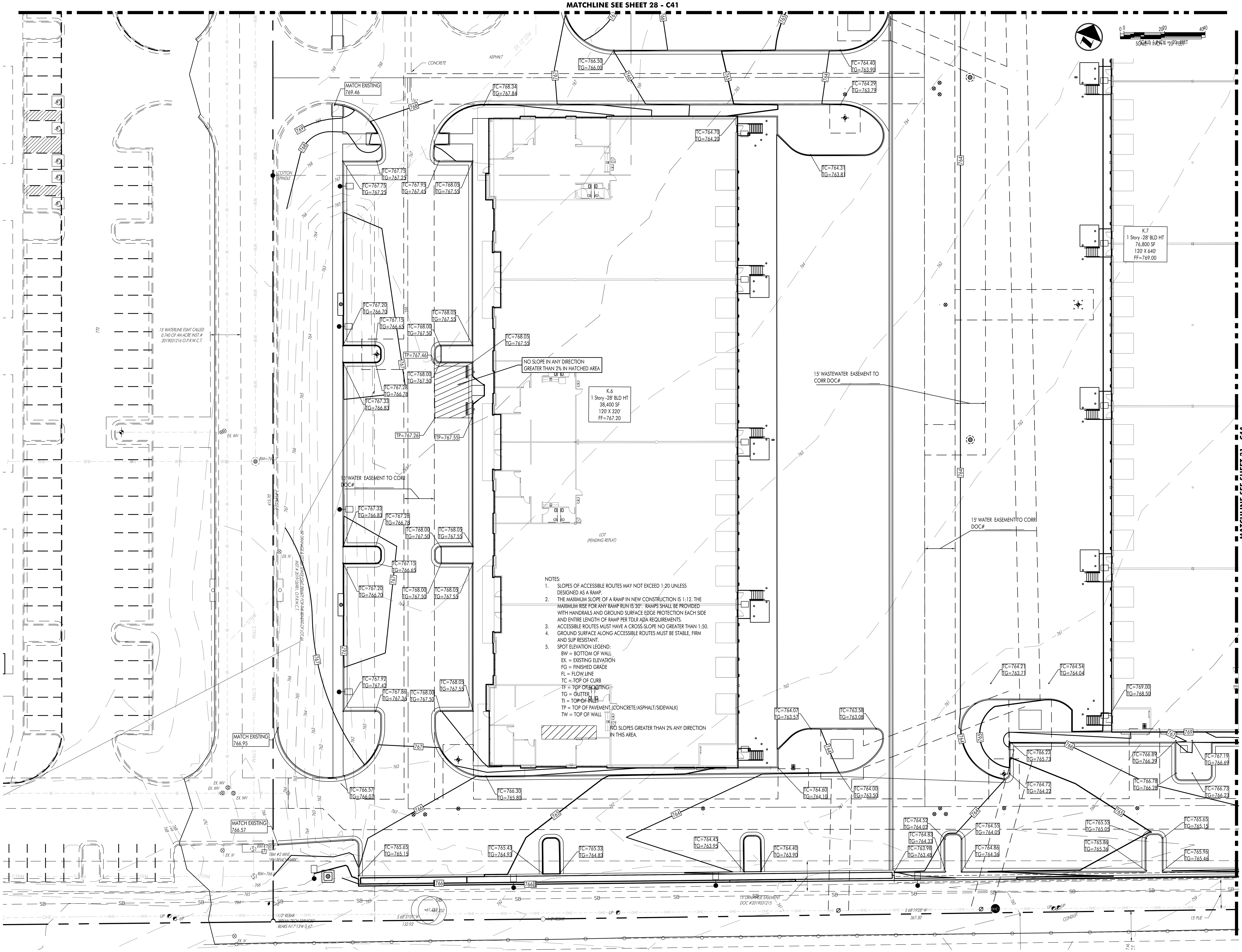
GRADING PLAN

C402

40

SDP2208-0002

13-018.2C402, 4/30/2023 1:42:16 PM, TerryH



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Project Number: 22-019g
Drawn By: JSR
Checked By: RB

GRADING PLAN

C403

41

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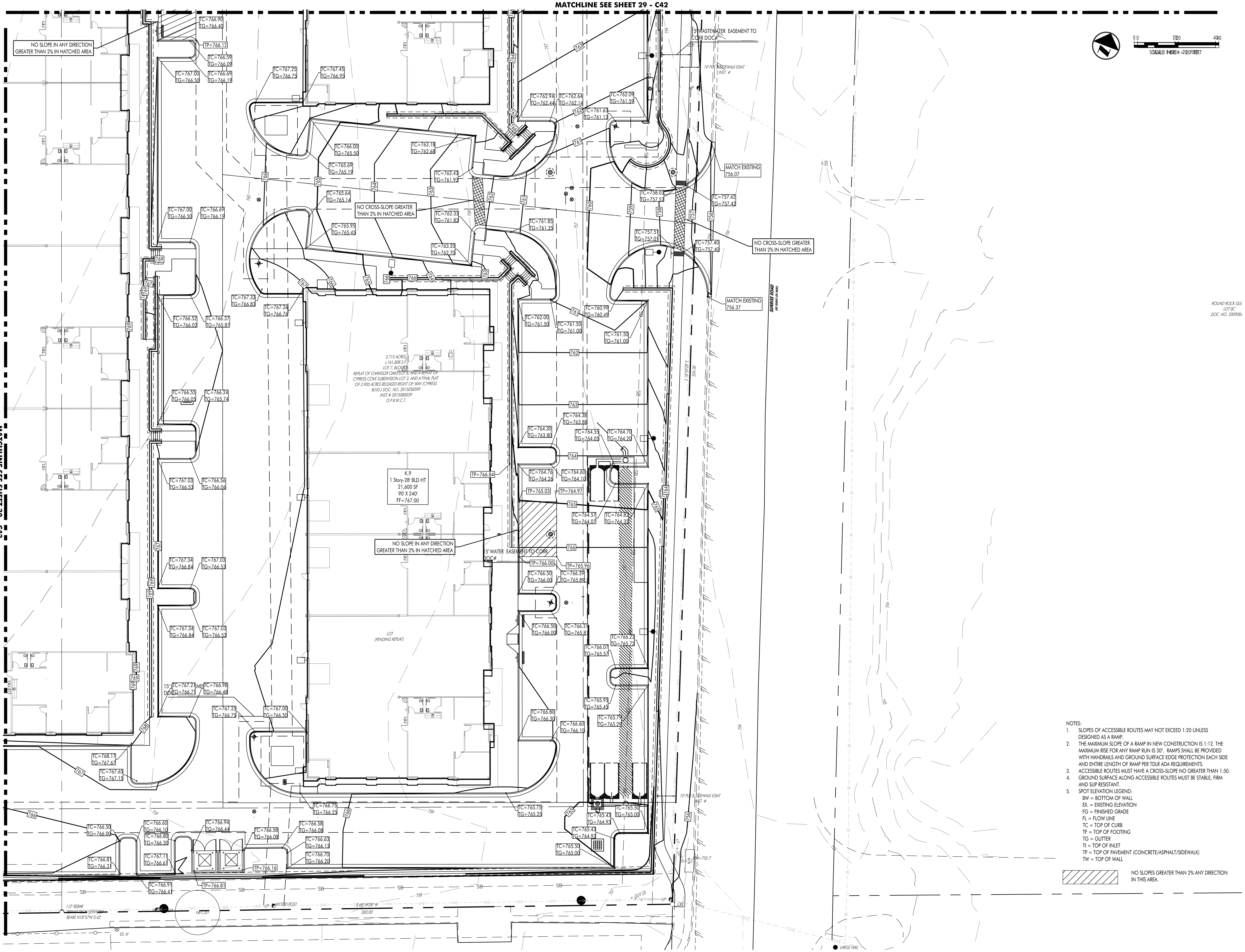
13-018.2C403, 4/30/2023 1:42:32 PM, TerryH



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Project Number: 22-019g
Drawn By: JSR
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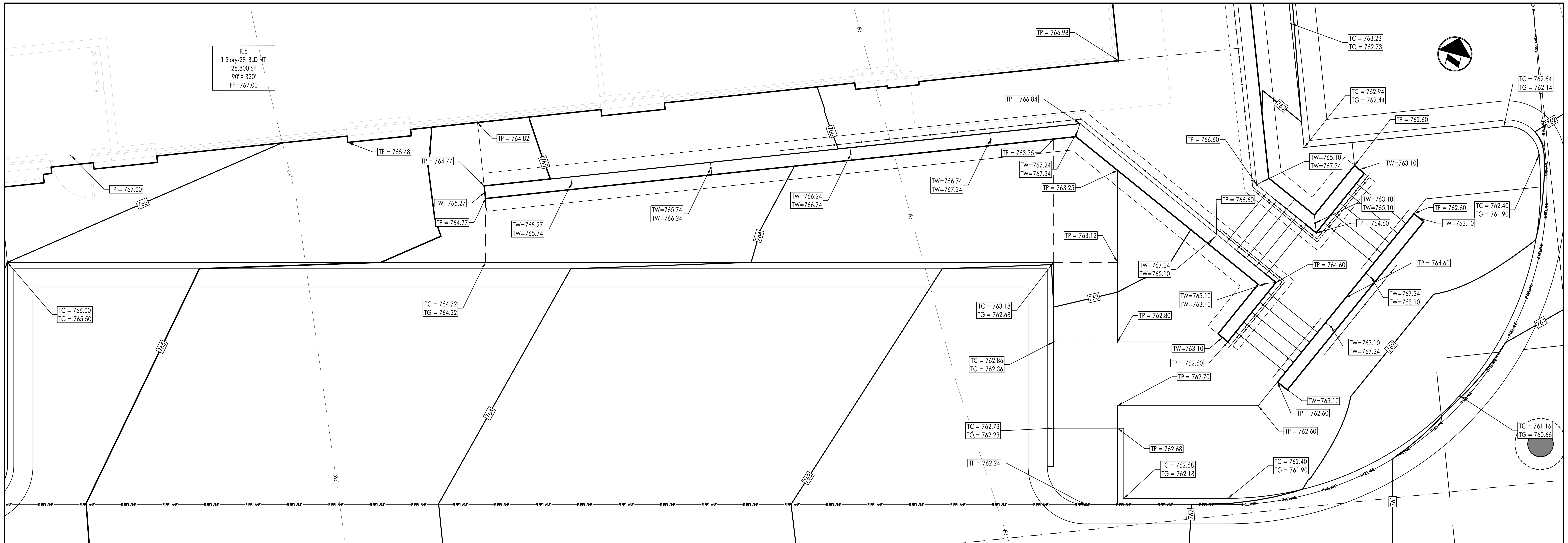
GRADING PLAN

C404

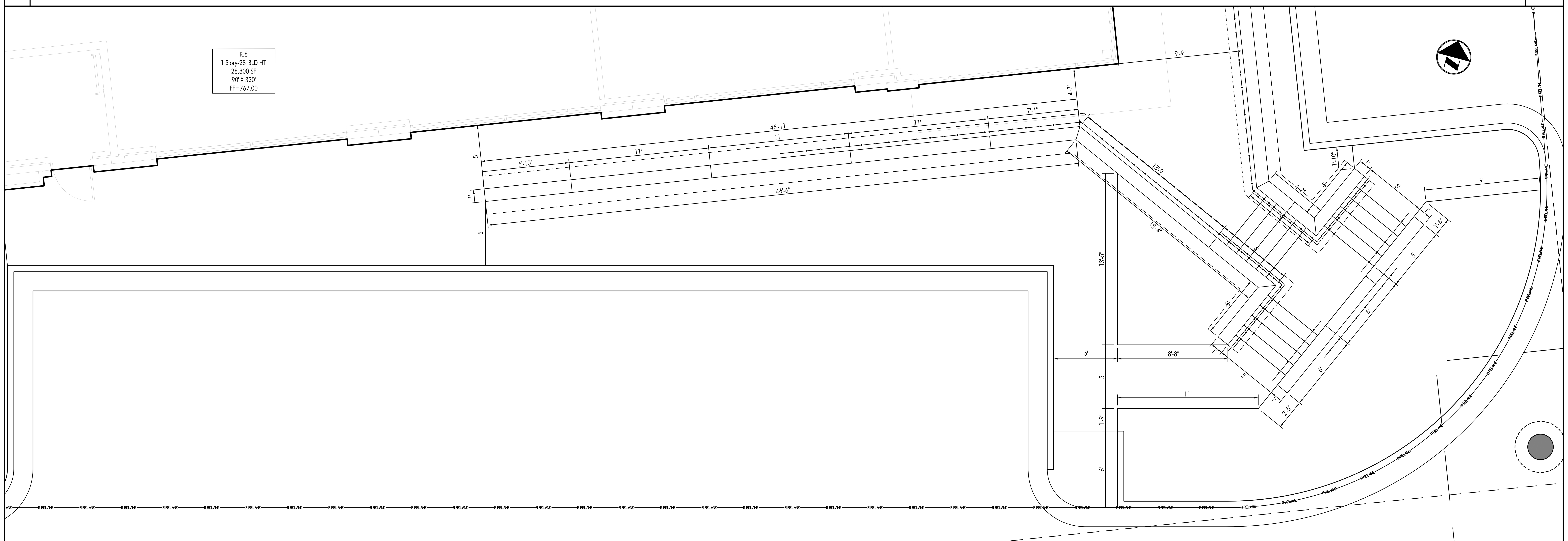
42

SDP2208-0002

13-018.2C404, 4/30/2023 1:42:47 PM, TerryH



01 BUILDING 9 STAIRWAY GRADING 1" = 4'



02 BUILDING 9 STAIRWAY DIMENSIONING 1" = 4'

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4 4.30.2023 TCEQ UPDATE

Project Number: 22-019g
Drawn By: JSR
Checked By: RB

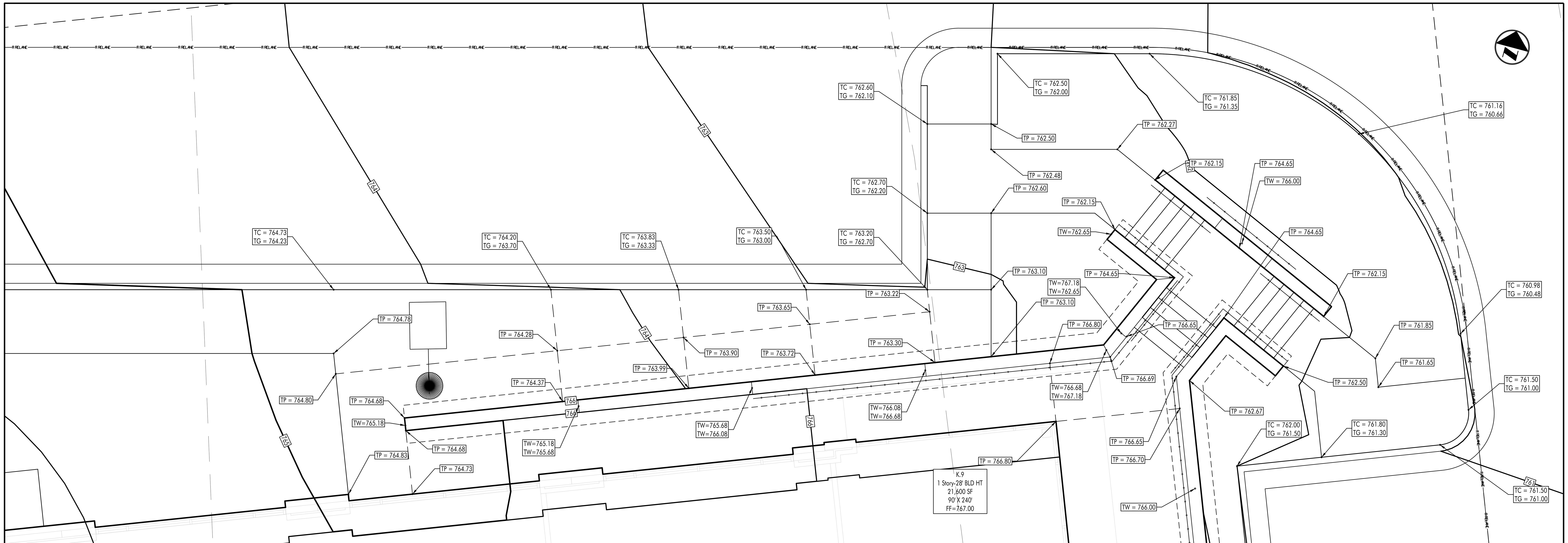
STAIRWAY BLOWUP

C405

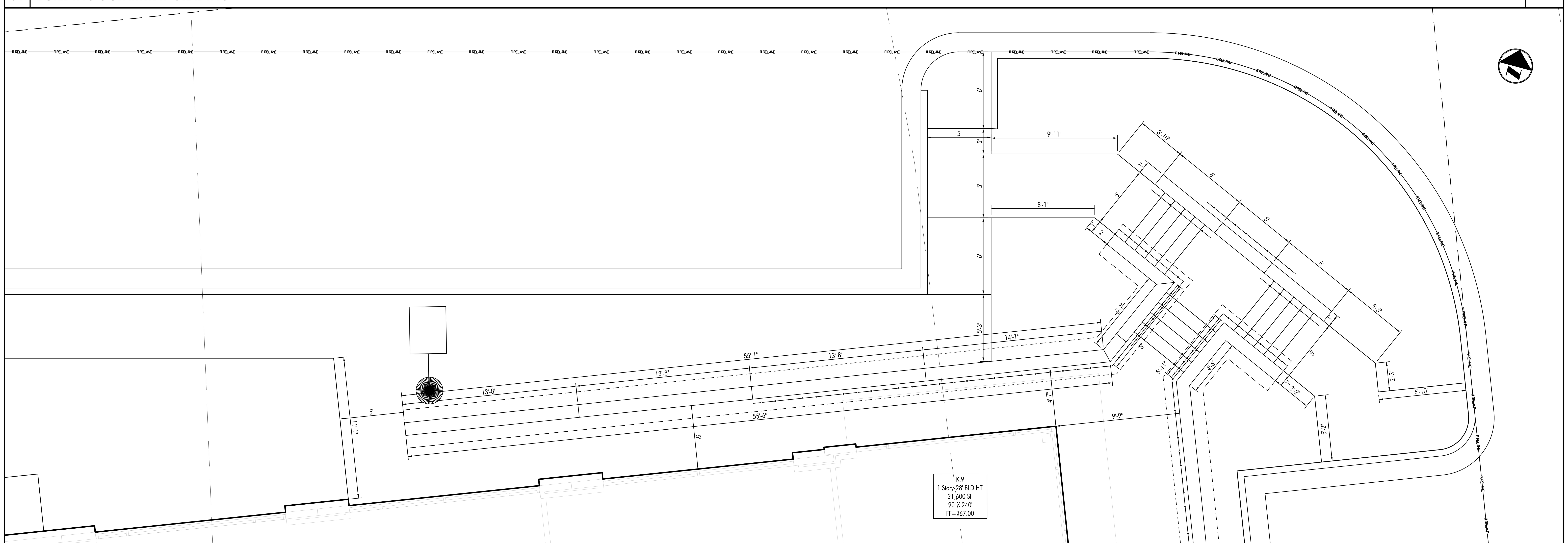
43

SDP2208-0002

13-018.2\C405, 4/30/2023 1:43:16 PM, TerryH



01 **BUILDING 8 STAIRWAY GRADING** 1" = 4'



02 **BUILDING 8 STAIRWAY DIMENSIONING** 1" = 4'

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Project Number: 22-019g
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STAIRWAY BLOWUP

C406

44

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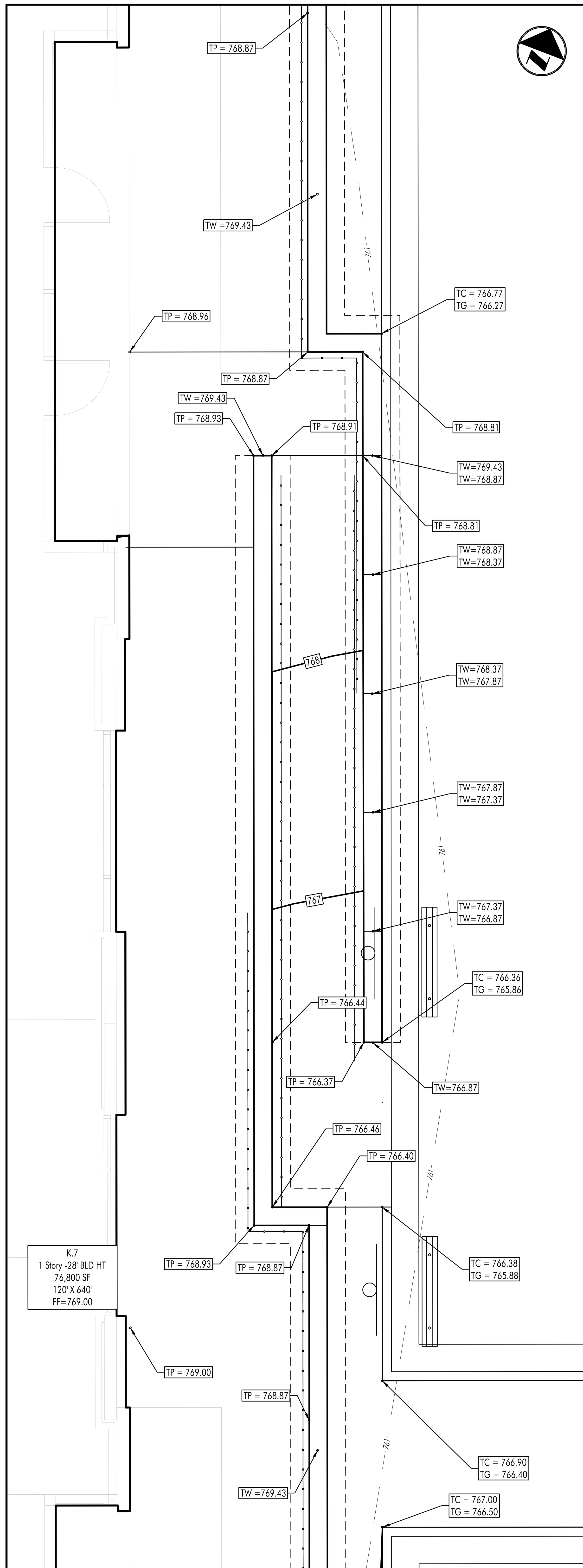
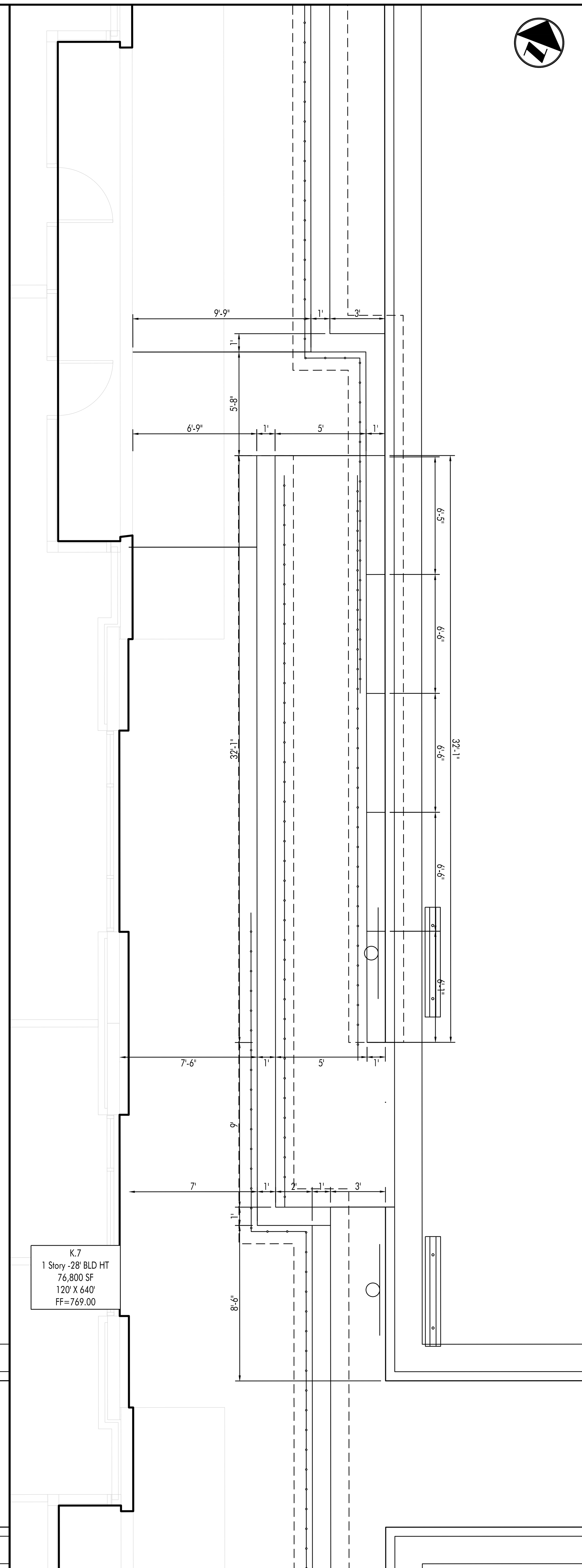
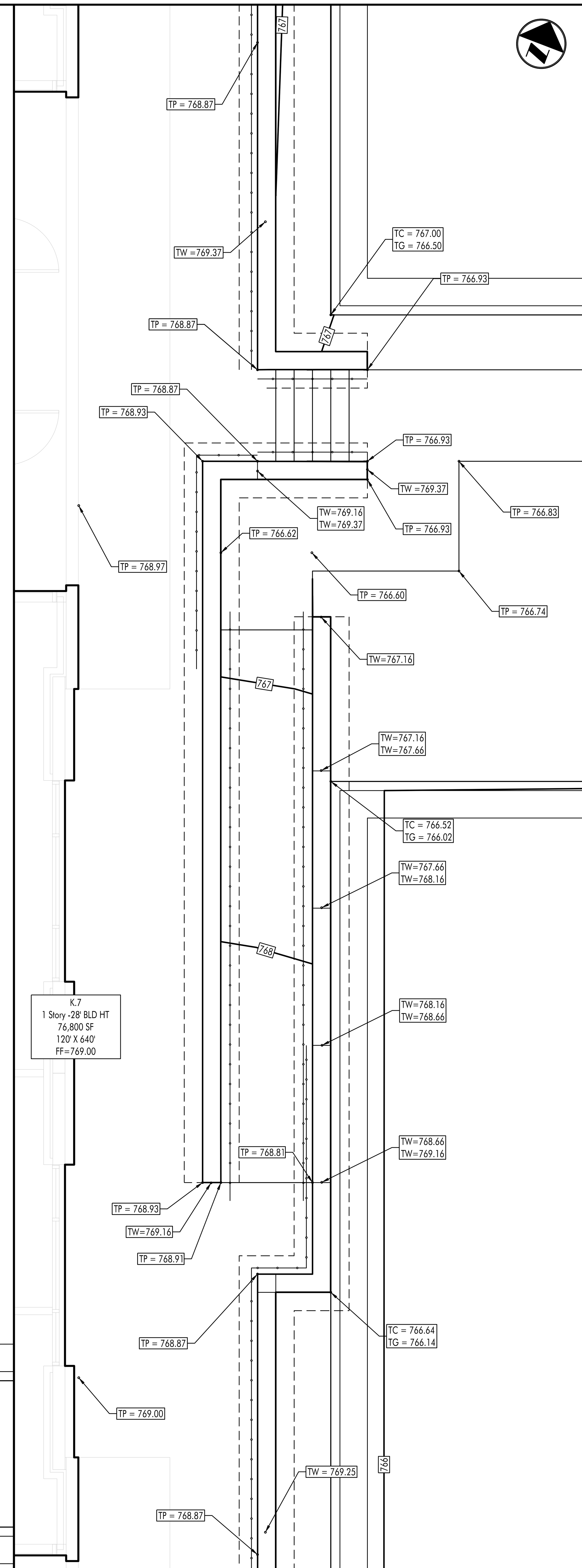
13-018.2C406, 4/30/2023 1:43:32 PM, TerryH



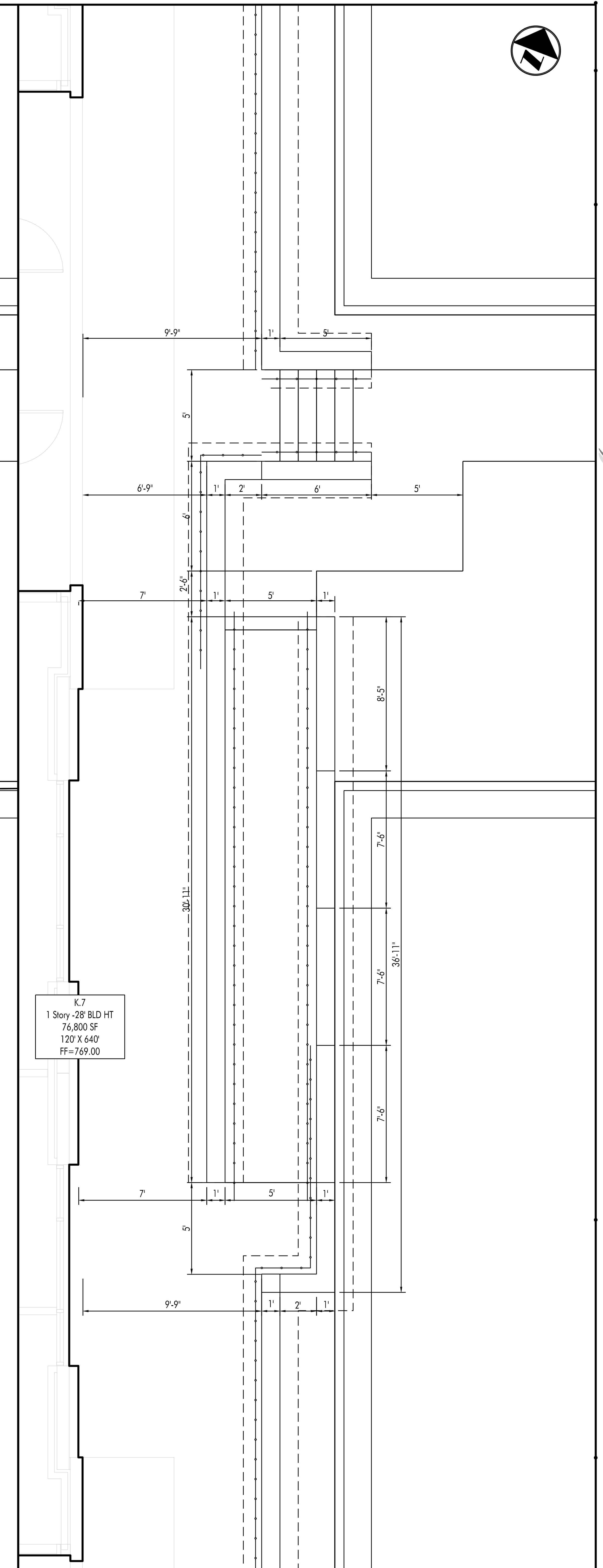
01 **RAMP A GRADING** 1" = 4'



02 **RAMP A DIMENSIONING** 1" = 4'



03 **RAMP B GRADING** 1" = 4'



04 **RAMP B DIMENSIONING** 1" = 4'

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Project Number: 22-019g
Drawn By: JSR
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RAMP BLOWUP

C407

45

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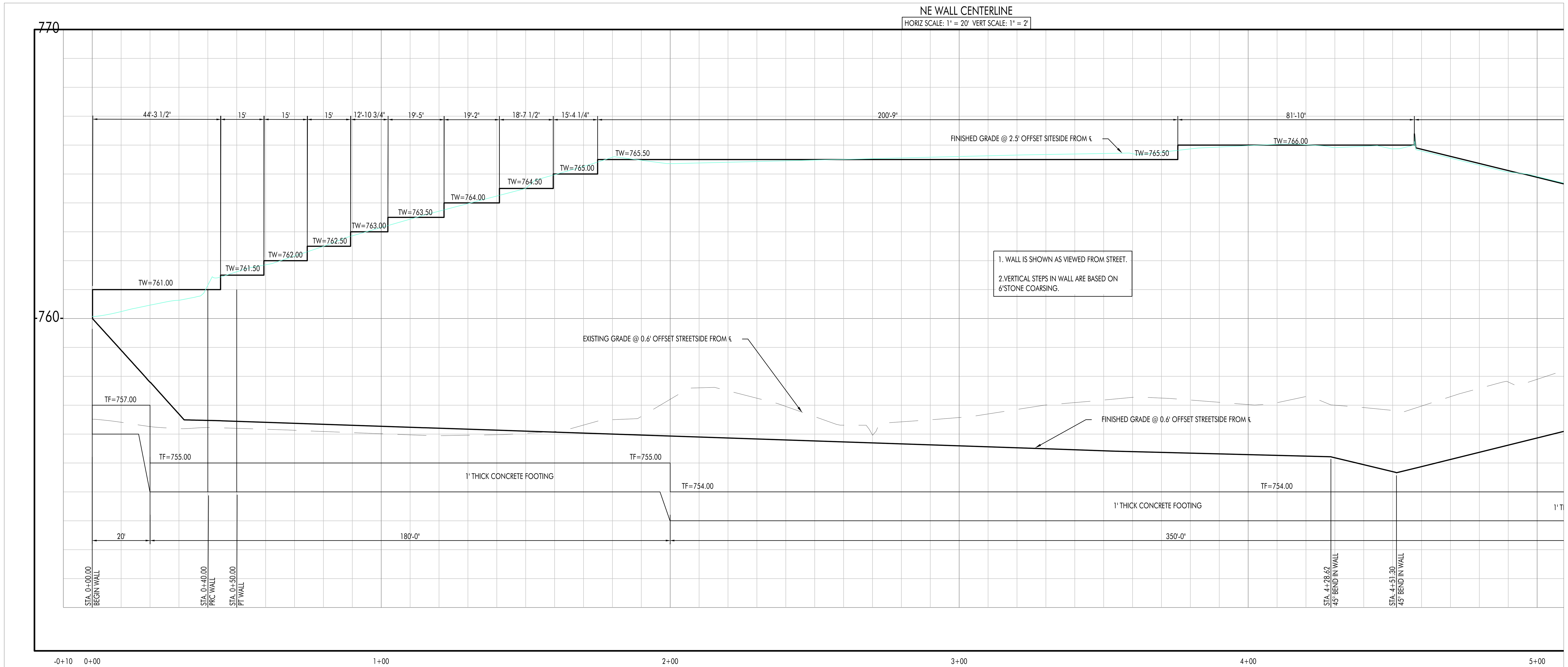
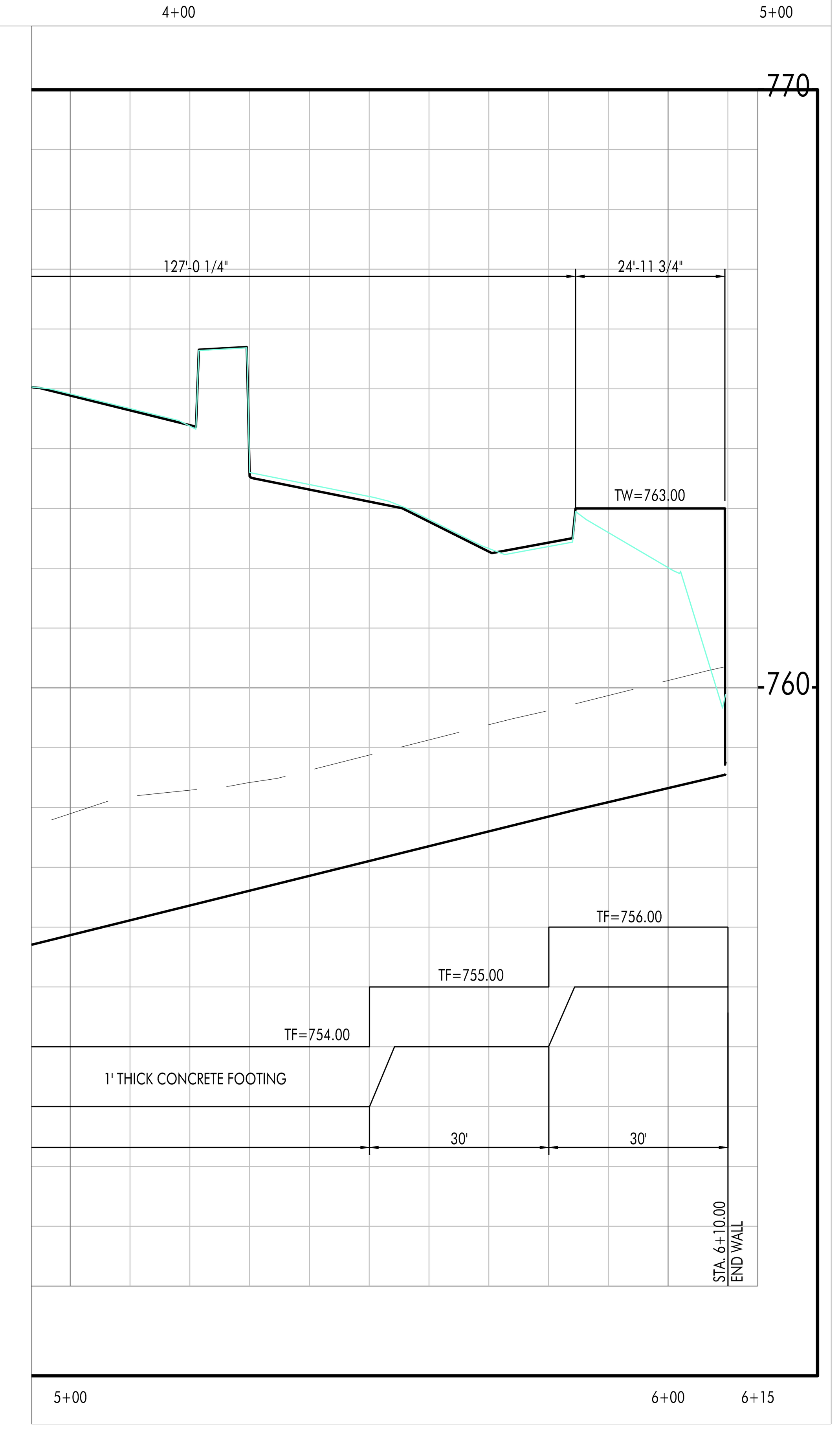
13-018.2C407, 4/30/2023 1:43:47 PM, TerryH





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Project Number: 22-019g
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Checked By: RB

WALL PROFILE

C408

46

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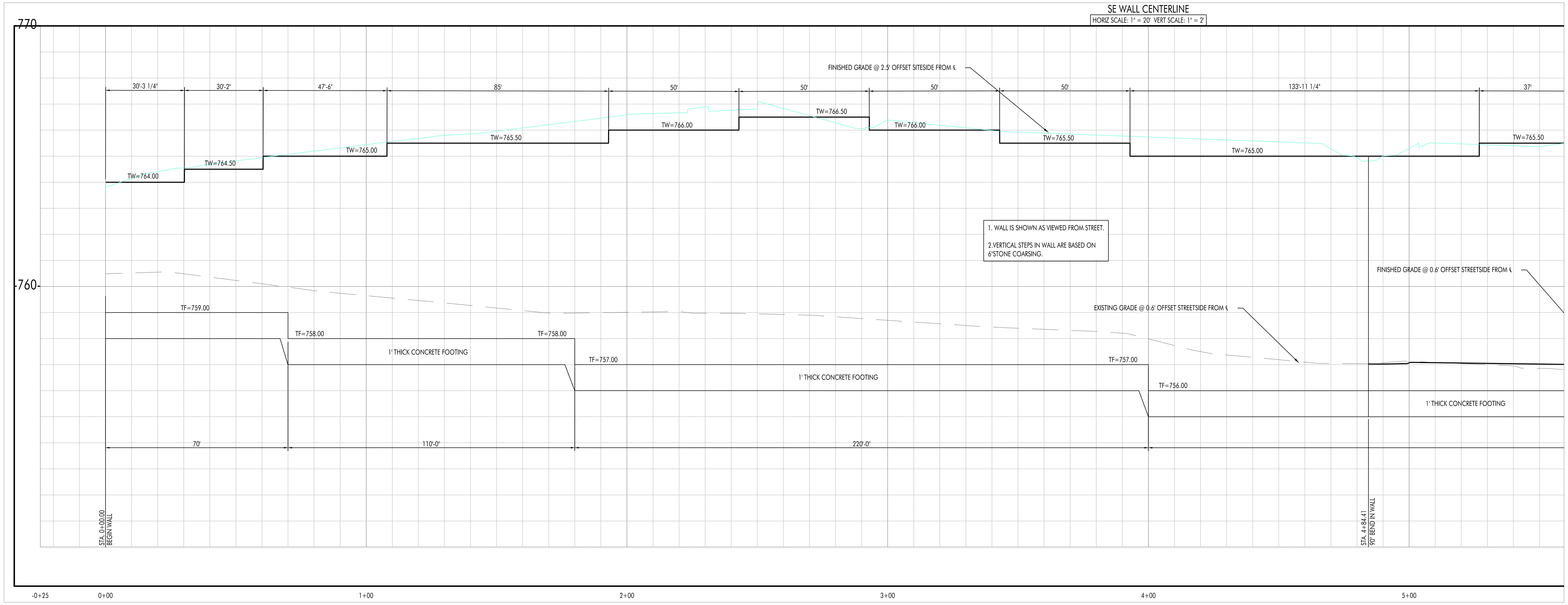
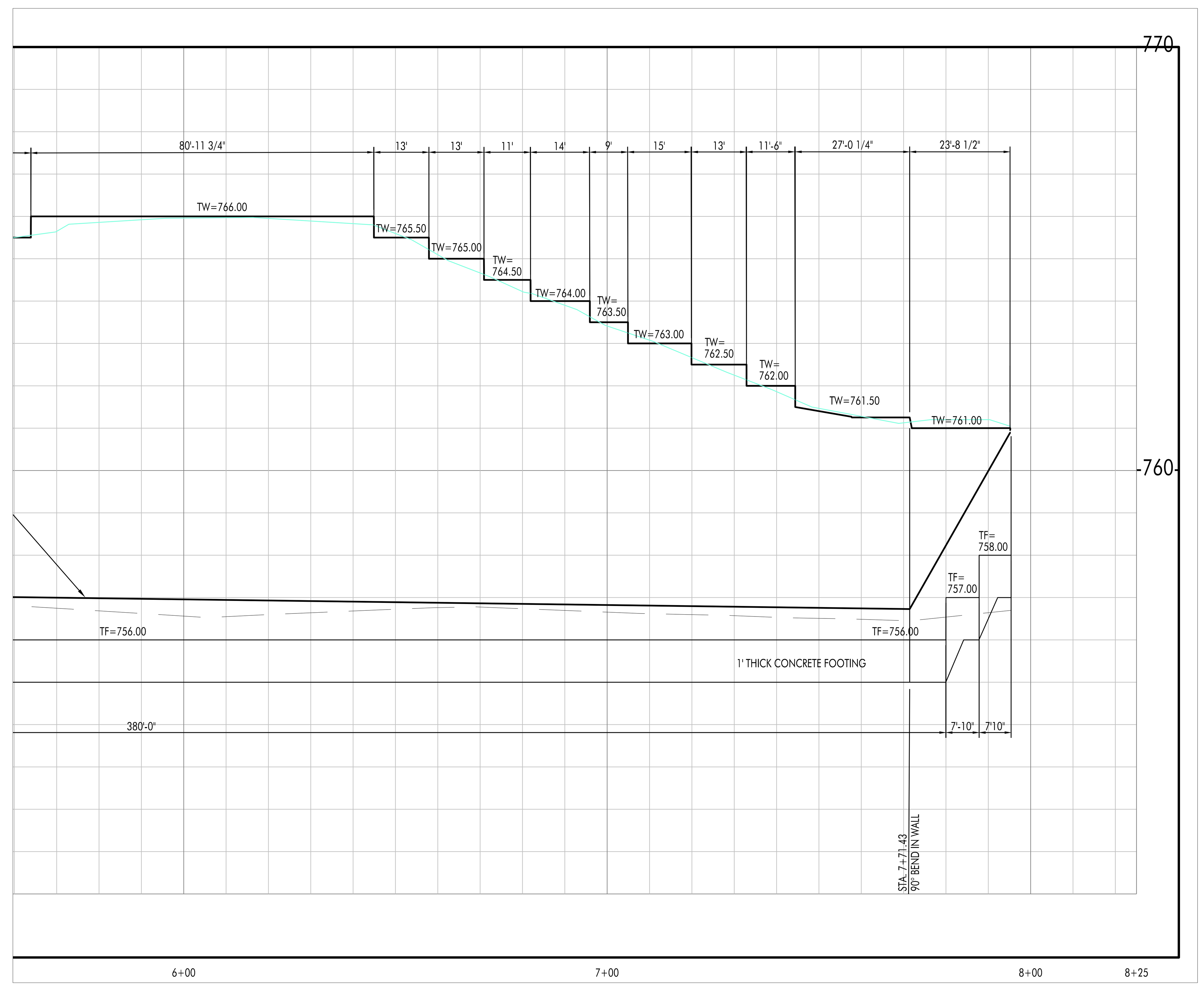
13-018.2C408, 4/30/2023 1:44:25 PM, TerryH





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WALL PROFILE

C409

47

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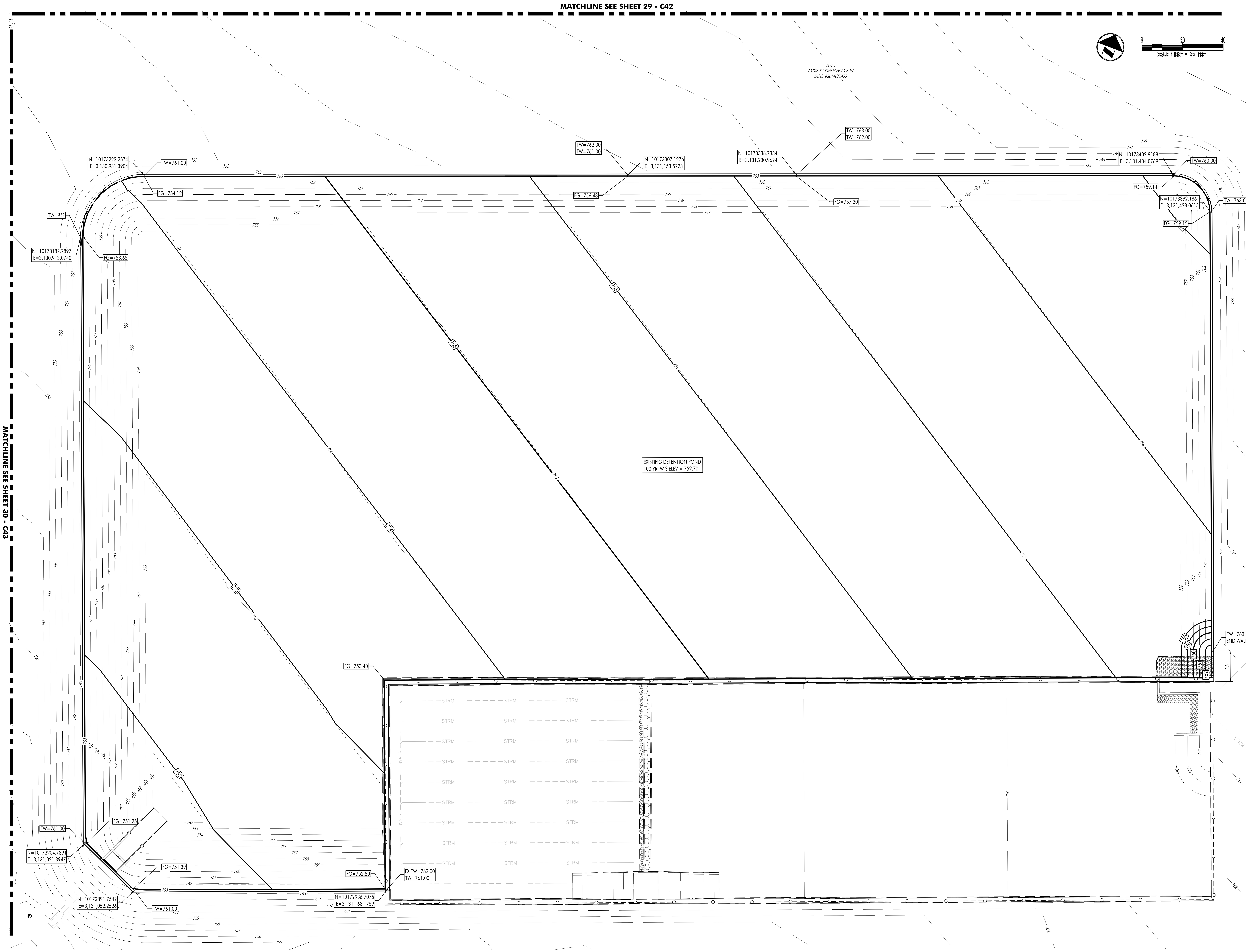
13-018.2C409, 4/30/2023 1:44:31 PM, TerryH



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POND GRADING

C410

48

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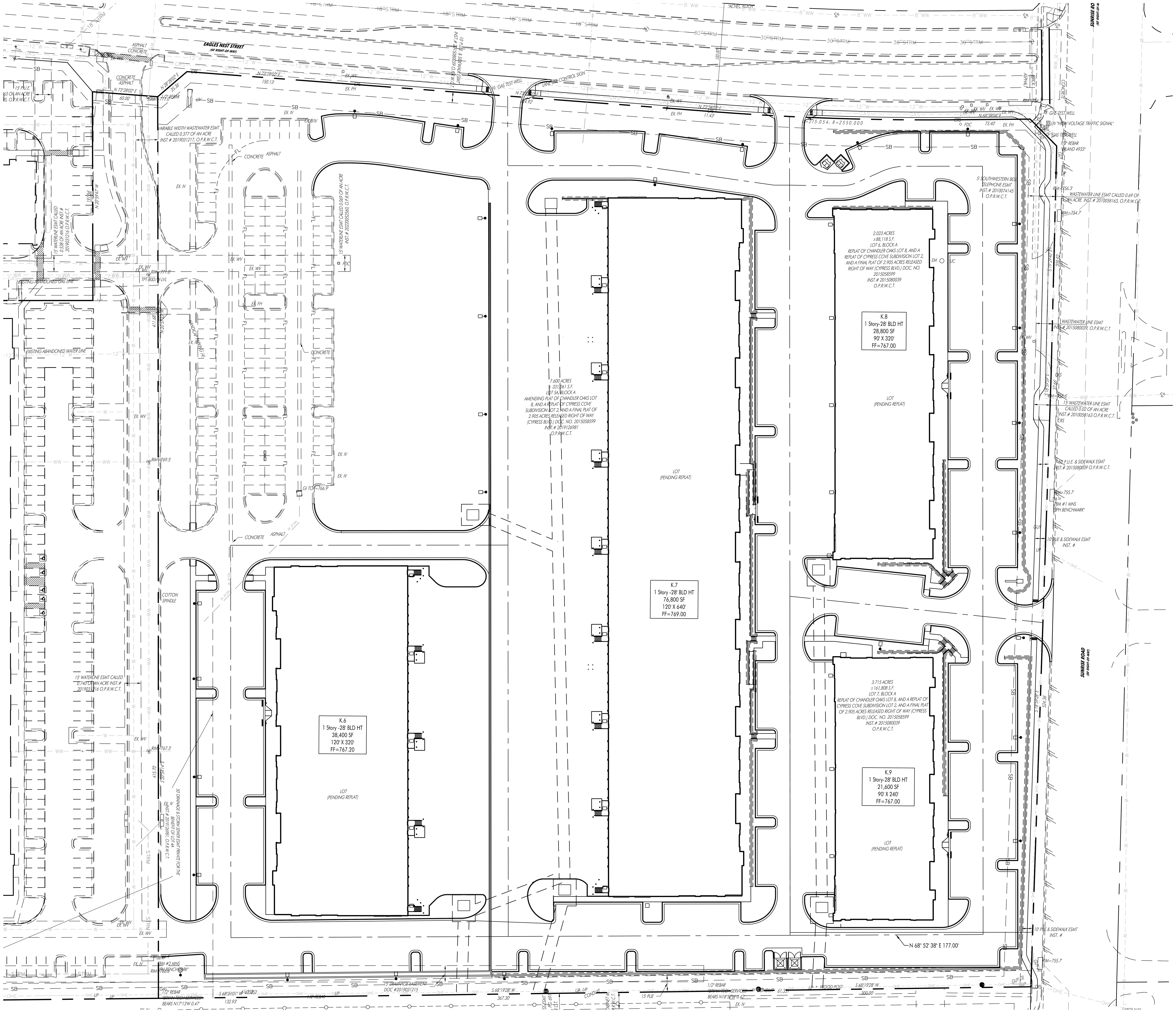
13-018.2C410, 4/30/2023 1:44:51 PM, TerryH



LEGEND

- IRON ROD FOUND/SET
- CONCRETE MONUMENT FOUND/SET
- NAIL FOUND/SET
- PIPE FOUND
- STORMWATER MANHOLE (DRAWN TO SCALE)
- JUNCTION BOX (DRAWN TO SCALE)
- GRATE INLET (DRAWN TO SCALE)
- WASTEWATER MANHOLE (DRAWN TO SCALE)
- EX. CO — WASTEWATER CLEANOUT
- GAS TEST STATION
- GAS METER
- ELECTRIC METER
- LIGHT POLE
- SIGNAL LIGHT POLE
- UTILITY POLE
- TELEPHONE MANHOLE
- EX. FH — FIRE HYDRANT
- EX. WV — GATE VALVE
- EX. ICV — IRRIGATION CONTROL VALVE
- WATER METER
- 100 / 99 — EXISTING CONTOURS
- CONTOUR
- CURB AND GUTTER
- ASPHALT
- X" GAS LINE — X" DIA. GAS LINE
- X" STORM SEWER LINE — X" DIA. STORM SEWER LINE
- X" WASTEWATER LINE — X" DIA. WASTEWATER LINE
- X" WATER LINE — X" DIA. WATER LINE
- EXISTING CHAIN LINK FENCE
- EXISTING WIRE FENCE
- EXISTING WOOD FENCE
- SB — SETBACK LINE
- EASEMENT LINE
- EXISTING ASPHALT
- OHE — EXISTING OVERHEAD ELECTRIC LINE
- UGE — EXISTING UNDERGROUND ELECTRIC LINE
- OHT — EXISTING OVERHEAD TELEPHONE LINE
- UGT — EXISTING UNDERGROUND TELEPHONE LINE
- W — EXISTING WATER LINE (SIZE VARIES)
- WW — EXISTING WASTEWATER LINE (SIZE VARIES)
- FM — EXISTING FORCE MAIN (SIZE VARIES)
- FOC — EXISTING FIBER OPTIC LINE
- GAS — EXISTING GAS LINE (SIZE VARIES)
- BENCHMARK LOCATION
- EXISTING TREE TO REMAIN (SIZE VARIES)
- EXISTING TREE TO BE REMOVED (SIZE VARIES)
- MONARCH/HERITAGE TREE (SIZE VARIES)
- PARKING COUNT
- PARCEL LINES
- HC — HANDICAP ROUTE

NOTE:
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REGISTERED PROFESSIONAL ENGINEER

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. Eagles Nest 3
Lot KE - Bldgs. 6-9

3259 Eagles Nest St.
Round Rock, Texas,
78665

Issue

1	09.23.2022	50% CD - Pricing
2	11.04.2022	95% CD
3	12.05.2022	CORR/TCEQ
4	4.30.2023	TCEQ UPDATE

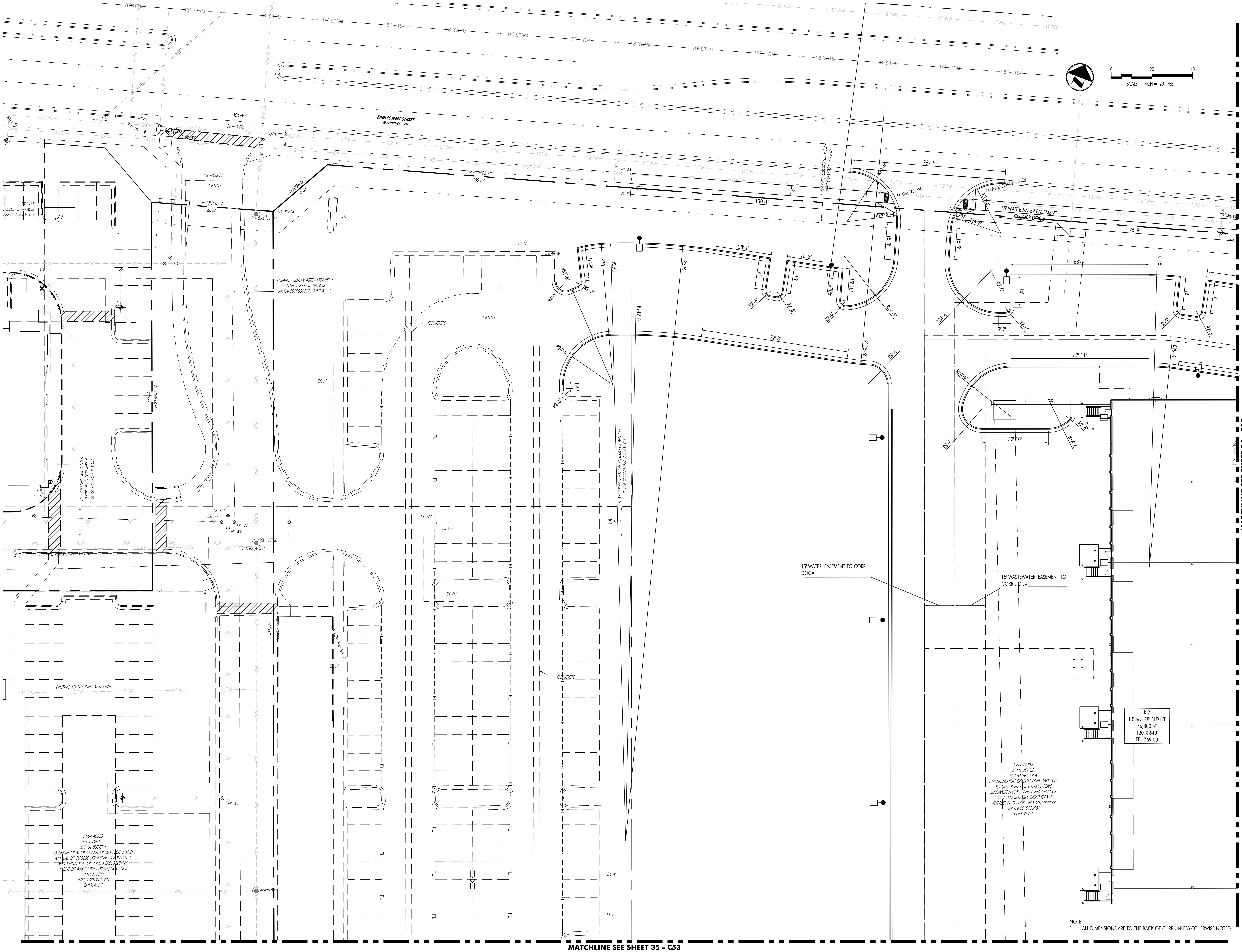
Project Number: 22-019g
Drawn By: JSR
Checked By: RB

OVERALL DIMENSION CONTROL PLAN

C50

49

SDP2208-0002



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Issue

1 09.23.2022 50% CD - Pricing
2 11.04.2022 95% CD
3 12.05.2022 CORR/TCEQ
4 4.30.2023 TCEQ UPDATE

Project Number: 22-019g
Drawn By: JSR
Checked By: RB

DIMENSION CONTROL PLAN

C51

50

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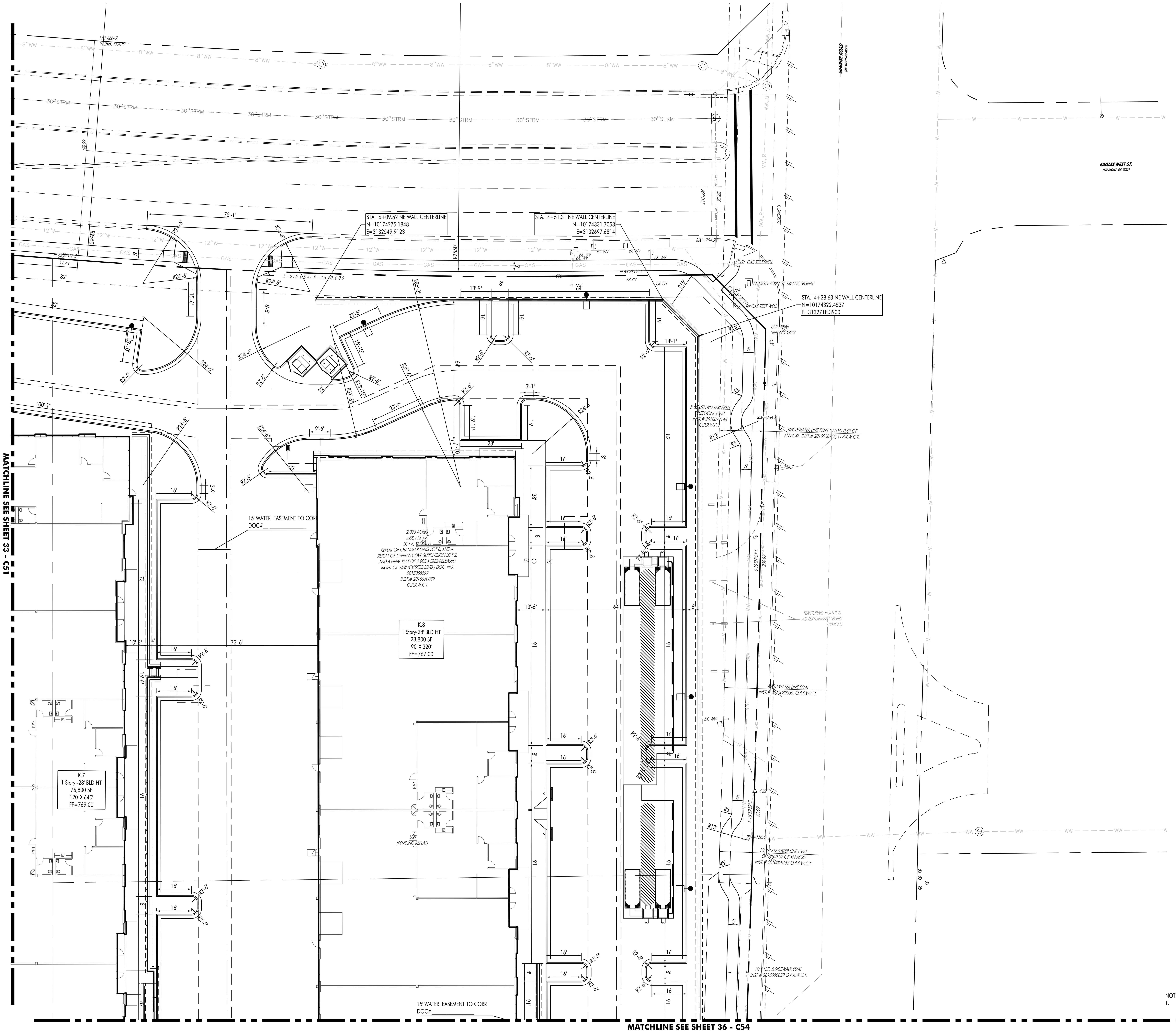
13-018.2C51, 4/30/2023 1:45:26 PM, TerryH



LEGEND

- IRON ROD FOUND/SET
- CONCRETE MONUMENT FOUND/SET
- NAIL FOUND/SET
- PIPE FOUND
- STORMWATER MANHOLE (DRAWN TO SCALE)
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- GAS METER
- ELECTRIC METER
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- SIGNAL LIGHT POLE
- UTILITY POLE
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DIMENSION CONTROL PLAN

C52

51

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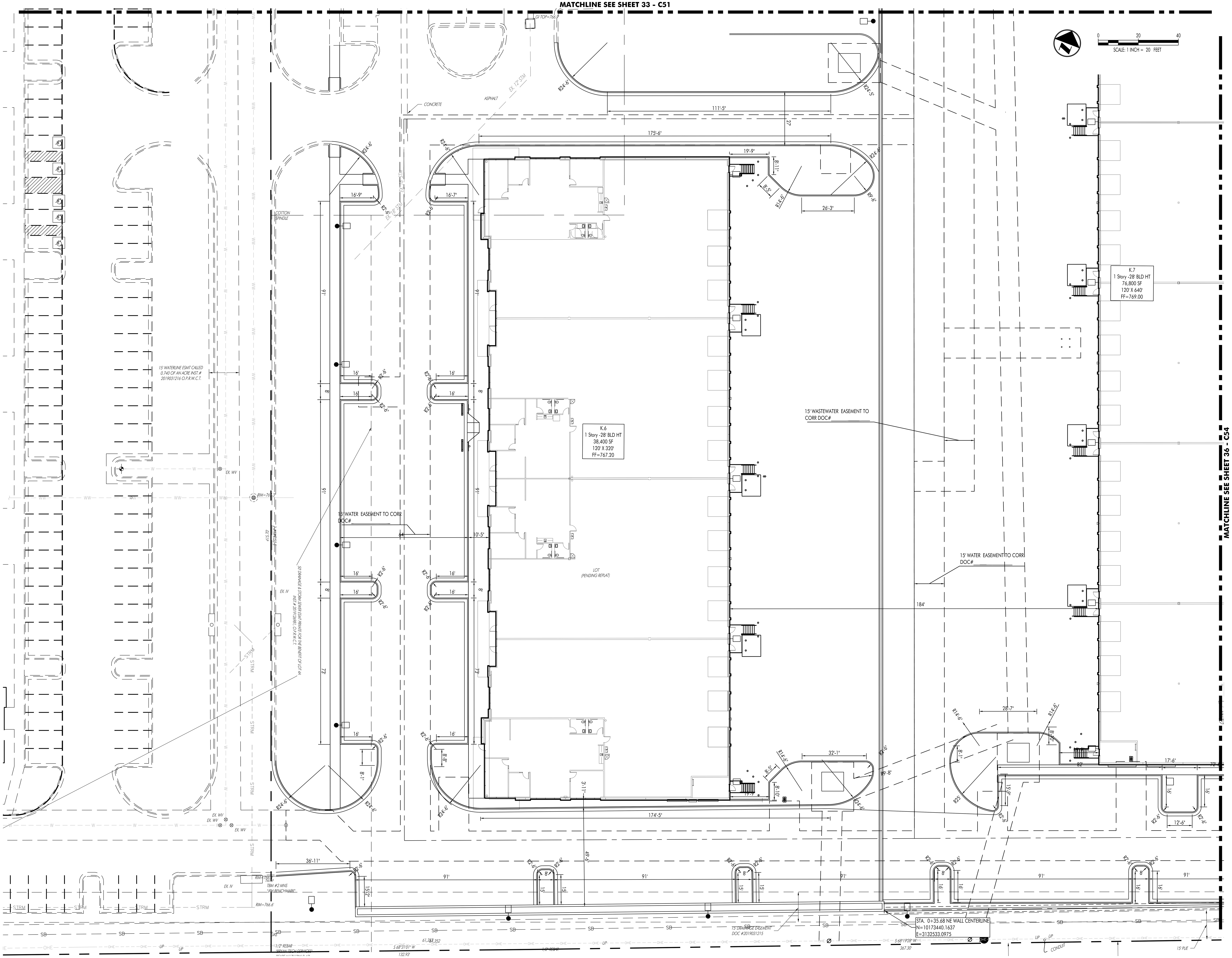
13-018.2C52, 4/30/2023 1:45:36 PM, TerryH



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DIMENSION CONTROL PLAN

C53

52

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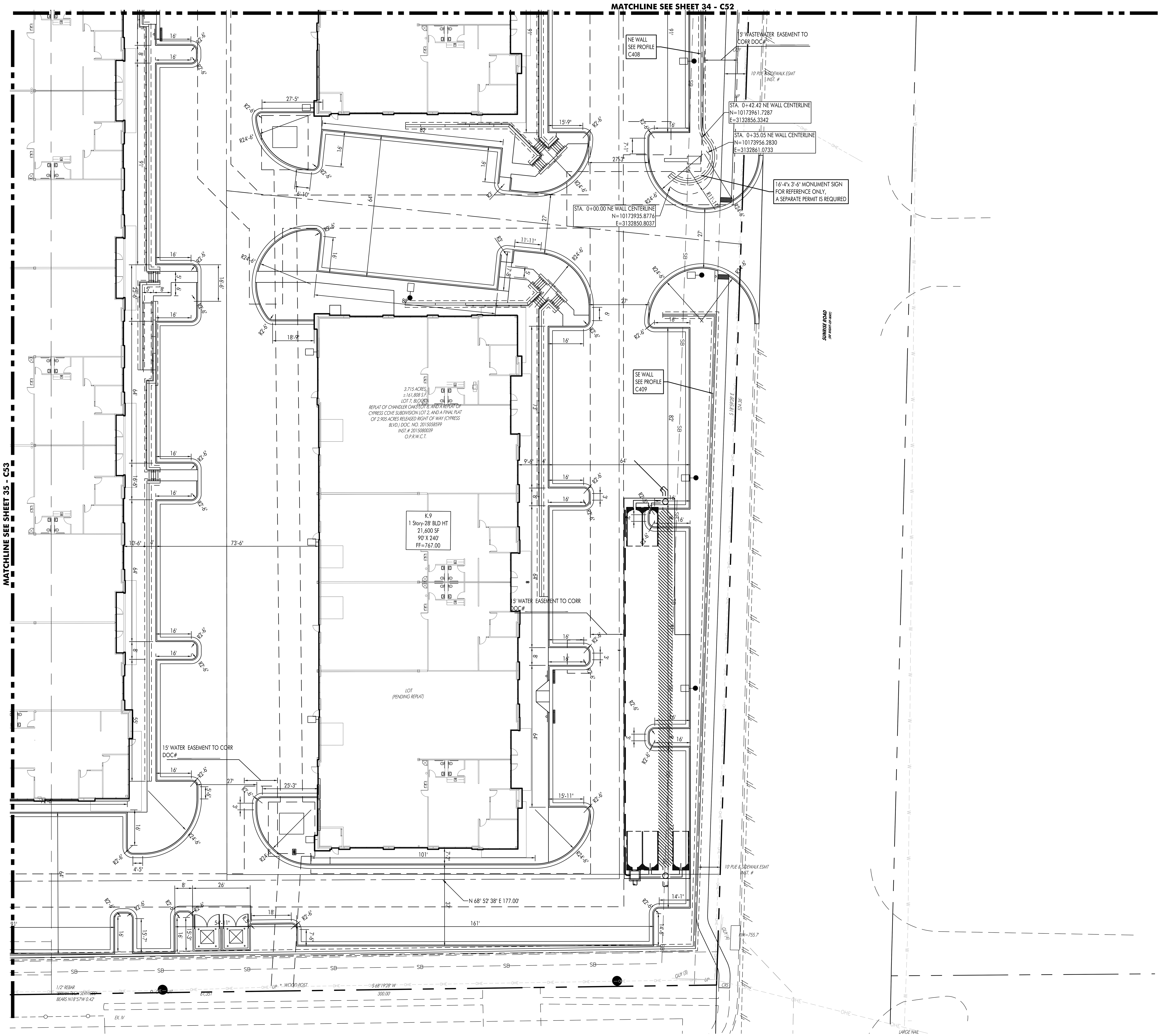
13-018.2C53, 4/30/2023 1:45:46 PM, TerryH



SCALE: 1 INCH = 20 FEET

LEGEND

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- CONCRETE MONUMENT FOUND/SET
- NAIL FOUND/SET
- PIPE FOUND
- STORMWATER MANHOLE (DRAWN TO SCALE)
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4	4.30.2023	TCEQ UPDATE

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DIMENSION CONTROL PLAN

C54

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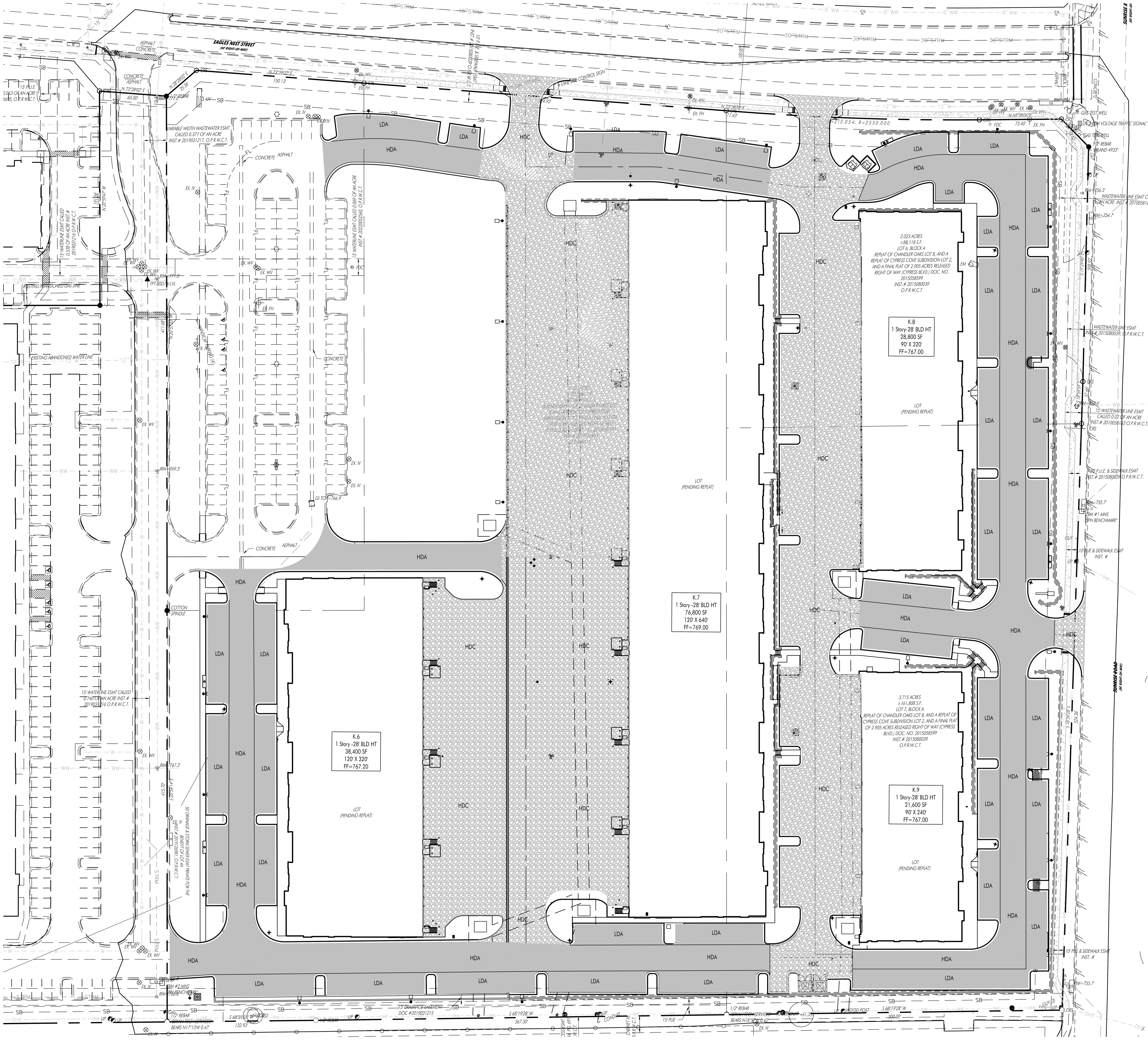
13-018.2C54, 4/30/2023 1:45:56 PM, TerryH



0 40 80
SCALE: 1 INCH = 40 FEET

HDC = HEAVY DUTY CONCRETE
LDC = LIGHT DUTY CONCRETE
HDA = HEAVY DUTY ASPHALT
LDA = LIGHT DUTY ASPHALT

CONCRETE PAVING

ASPHALT PAVING

PUBLIC CONCRETE SIDEWALK

NOTES:

1. FIRELANE STRIPING TO BE 6" WIDE RED PAINT WITH "FIRE LANE-NO PARKING" IN 4" TALL WHITE LETTERS. WORDING MAY NOT BE SPACED MORE THAN 30 FEET APART. STRIPING TO BE PAINTED ON FACE OF CURB WHEN PRESENT AND PAINTED FLAT ON PARKING SURFACE WHEN IT IS NOT.

2. ALL DIMENSIONS ARE TO THE FACE OF CURB, OR CENTER OF STRIPING (WHERE APPLICABLE), UNLESS OTHERWISE NOTED.

3. FIRELANES SHALL BE SURFACED SO AS TO PROVIDE ALL-WEATHER DRIVING CAPABILITIES BEFORE ANY COMBUSTIBLE MATERIALS ARE ALLOWED ON SITE.

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4	4.30.2023	TCEQ UPDATE

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OVERALL PAVING AND STRIPING PLAN

C60

54

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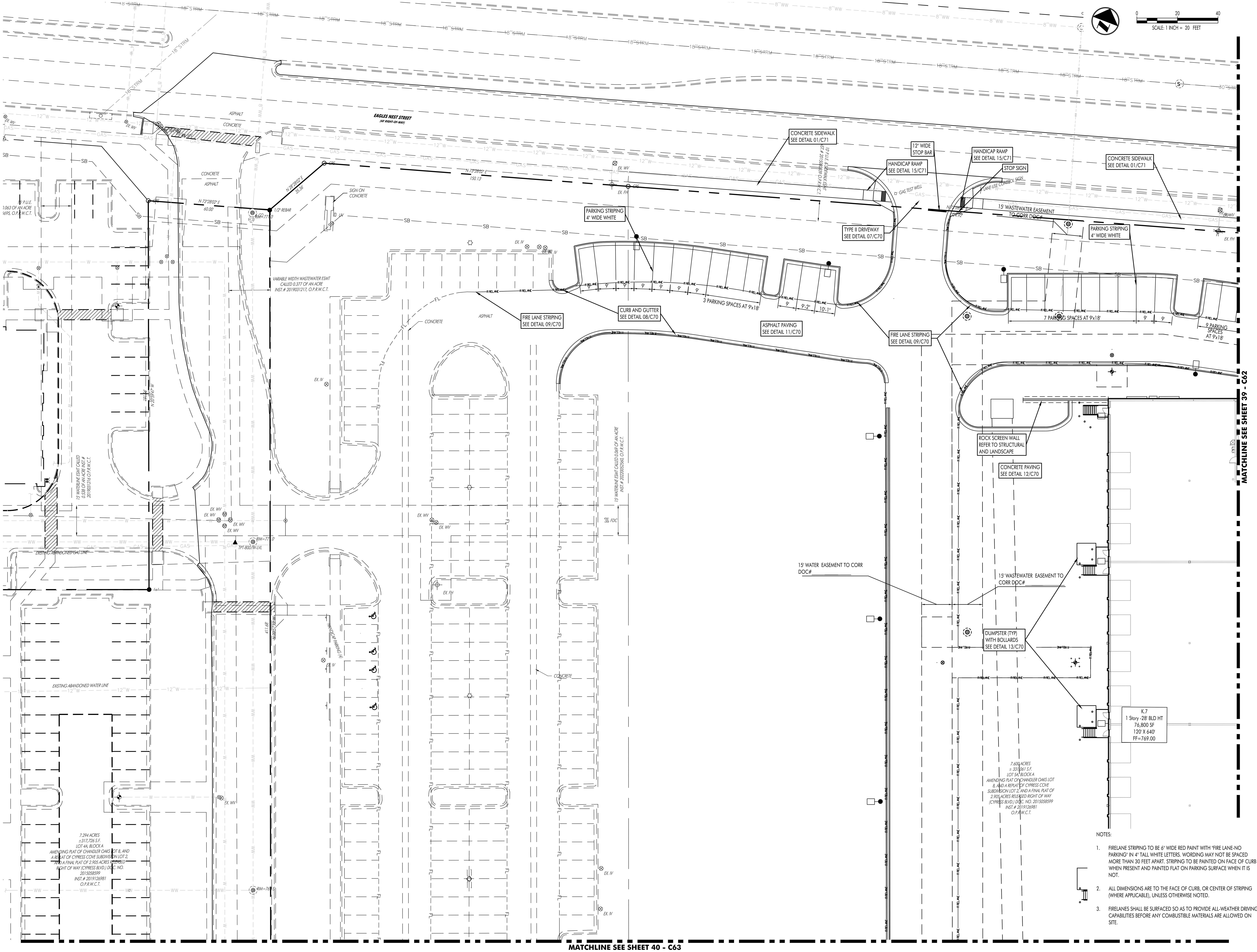

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4	4.30.2023	TCEQ UPDATE

Project Number: 22-019g
Drawn By: JSR
Checked By: RB

PAVING AND STRIPING PLAN

C61

55

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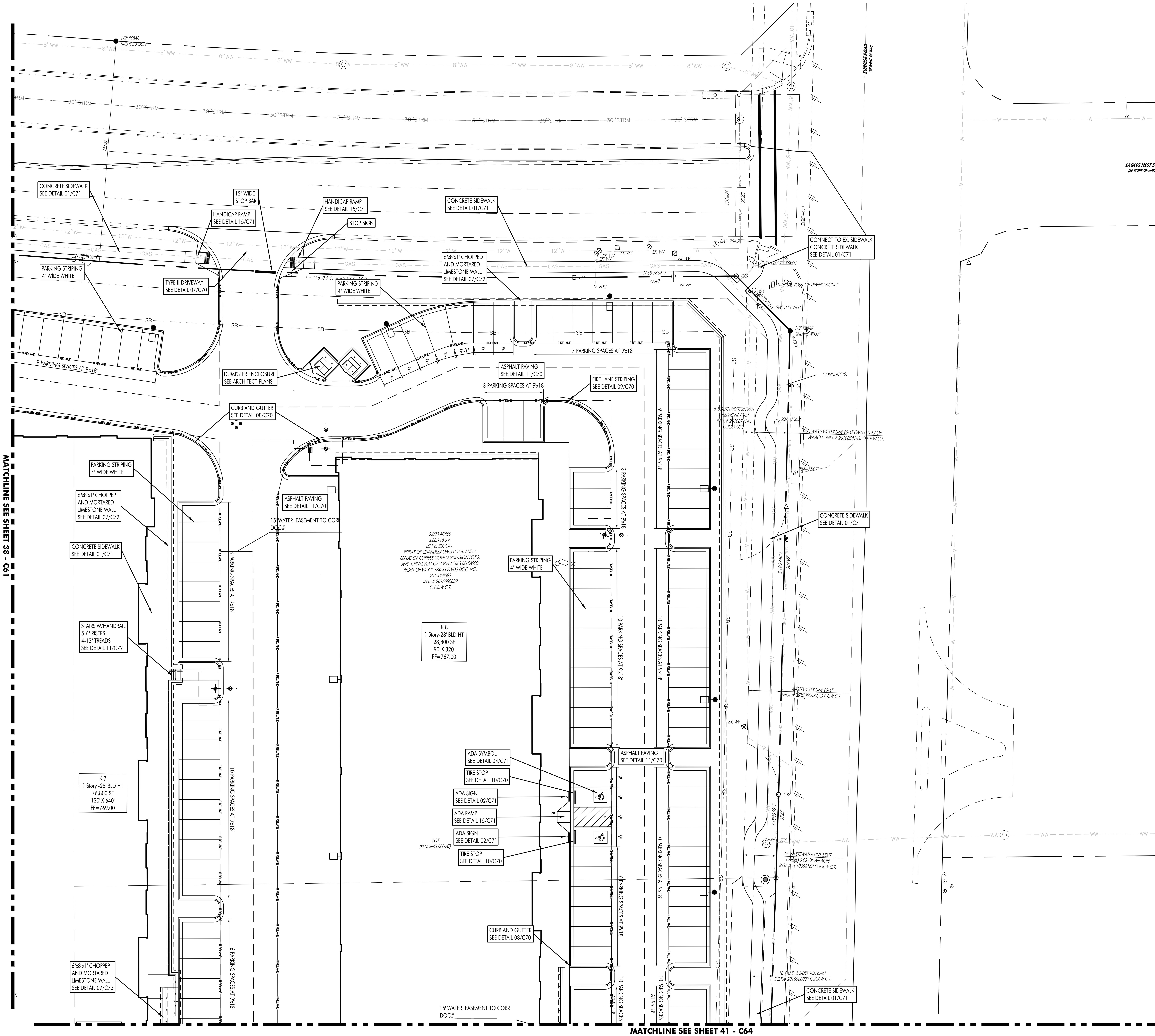
13-018.2C61, 4/30/2023 1:46:32 PM, TerryH



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Project Number: 22-019g
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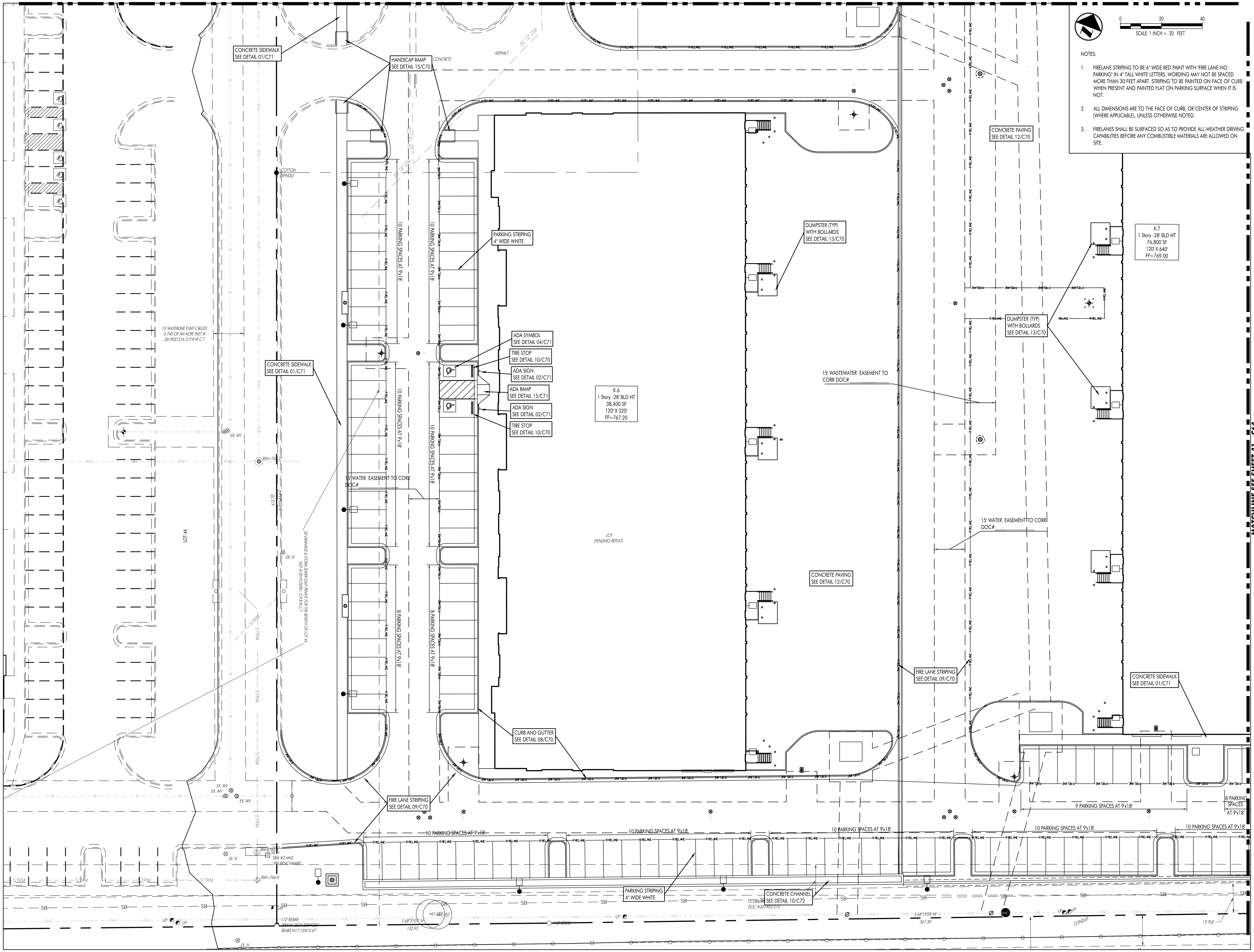
PAVING AND STRIPING PLAN

C62

13-018.2C62, 4/30/2023 1:48:42 PM, TerryH

MATCHLINE SEE SHEET 38 - C61



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. Eagles Nest 3
Lot KE - Bldgs. 6-9
3259 Eagles Nest St.
Round Rock, Texas,
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Issue

1	09.23.2022	50% CD - Pricing
2	11.04.2022	95% CD
3	12.05.2022	CORR/TCEQ
4	4.30.2023	TCEQ UPDATE

Project Number: 22-019g
Drawn By: JSR
Checked By: RB

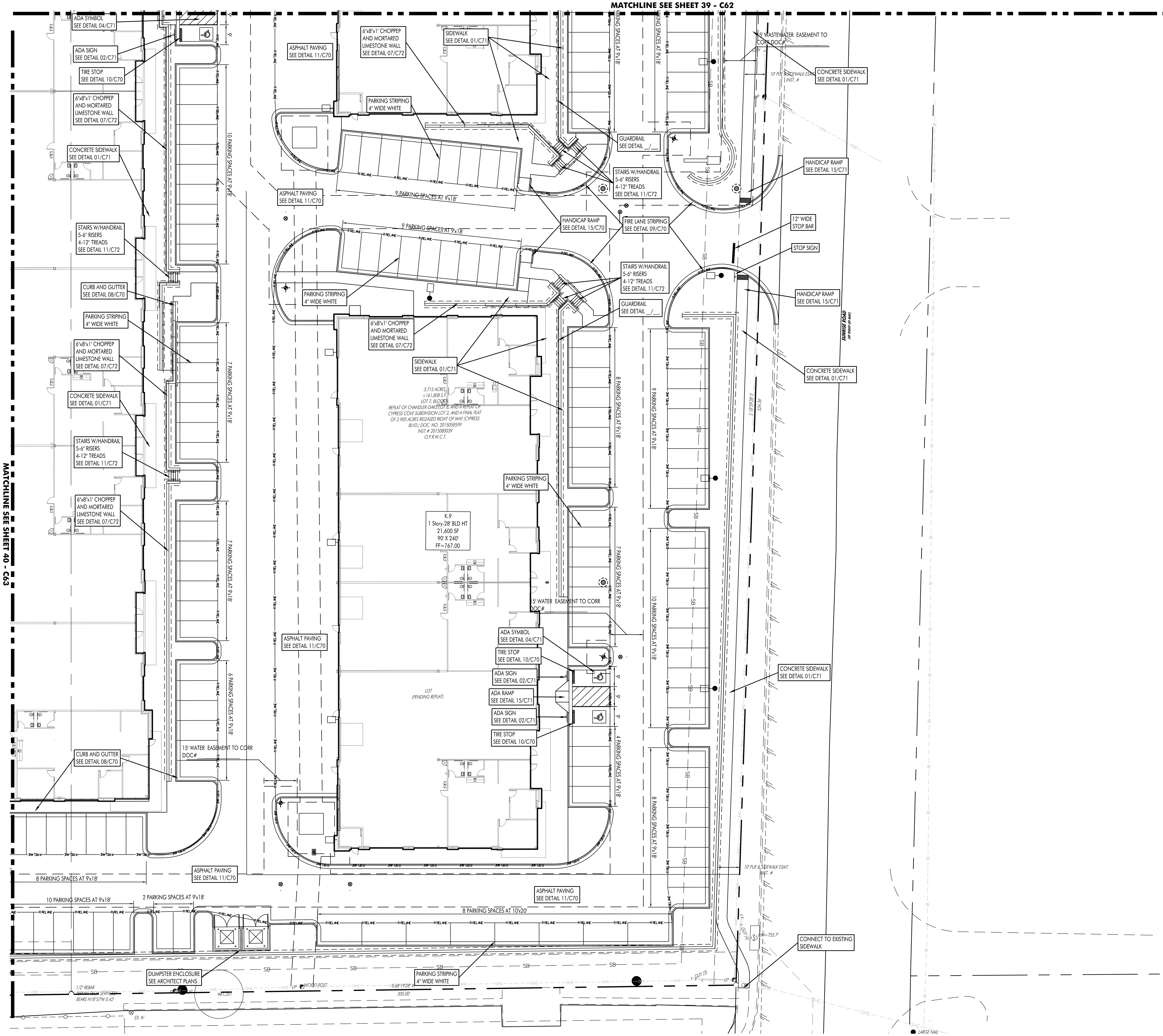
PAVING AND STRIPING PLAN

C63

57

SDP2208-0002

13-018.2C63, 4/30/2023 1:46:52 PM, TerryH



NOTES:

1. FIRELANE STRIPING TO BE 6" WIDE RED PAINT WITH "FIRE LANE-NO PARKING" IN 4" TALL WHITE LETTERS. WORDING MAY NOT BE SPACED MORE THAN 30 FEET APART. STRIPING TO BE PAINTED ON FACE OF CURB WHEN PRESENT AND PAINTED FLAT ON PARKING SURFACE WHEN IT IS NOT.
2. ALL DIMENSIONS ARE TO THE FACE OF CURB, OR CENTER OF STRIPING (WHERE APPLICABLE), UNLESS OTHERWISE NOTED.
3. FIRELANES SHALL BE SURFACED SO AS TO PROVIDE ALL-WEATHER DRIVING CAPABILITIES BEFORE ANY COMBUSTIBLE MATERIALS ARE ALLOWED ON SITE.

LEGEND

- IRON ROD FOUND/SET
- CONCRETE MONUMENT FOUND/SET
- NAIL FOUND/SET
- PIPE FOUND
- STORMWATER MANHOLE (DRAWN TO SCALE)
- JUNCTION BOX (DRAWN TO SCALE)
- GRATE INLET (DRAWN TO SCALE)
- WASTEWATER MANHOLE (DRAWN TO SCALE)
- WASTEWATER CLEANOUT
- GAS TEST STATION
- GAS METER
- ELECTRIC METER
- LIGHT POLE
- SIGNAL LIGHT POLE
- UTILITY POLE
- TELEPHONE MANHOLE
- FIRE HYDRANT
- GATE VALVE
- IRRIGATION CONTROL VALVE
- WATER METER
- EXISTING CONTOURS
- CONTOUR
- CURB AND GUTTER
- ASPHALT
- X' DIA. GAS LINE
- X' DIA. STORM SEWER LINE
- X' DIA. WASTEWATER LINE
- X' DIA. WATER LINE
- EXISTING CHAIN LINK FENCE
- EXISTING WIRE FENCE
- EXISTING WOOD FENCE
- SETBACK LINE
- EASEMENT LINE
- EXISTING ASPHALT
- EXISTING OVERHEAD ELECTRIC LINE
- EXISTING UNDERGROUND ELECTRIC LINE
- EXISTING OVERHEAD TELEPHONE LINE
- EXISTING UNDERGROUND TELEPHONE LINE
- EXISTING WATER LINE (SIZE VARIES)
- EXISTING WASTEWATER LINE (SIZE VARIES)
- EXISTING FORCE MAIN (SIZE VARIES)
- EXISTING FIBER OPTIC LINE
- EXISTING GAS LINE (SIZE VARIES)
- BENCHMARK LOCATION
- EXISTING TREE TO REMAIN (SIZE VARIES)
- EXISTING TREE TO BE REMOVED (SIZE VARIES)
- MONARCH/HERITAGE TREE (SIZE VARIES)
- PARKING COUNT
- PARCEL LINES
- HANDICAP ROUTE

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Drawn By: JSR
Checked By: RB

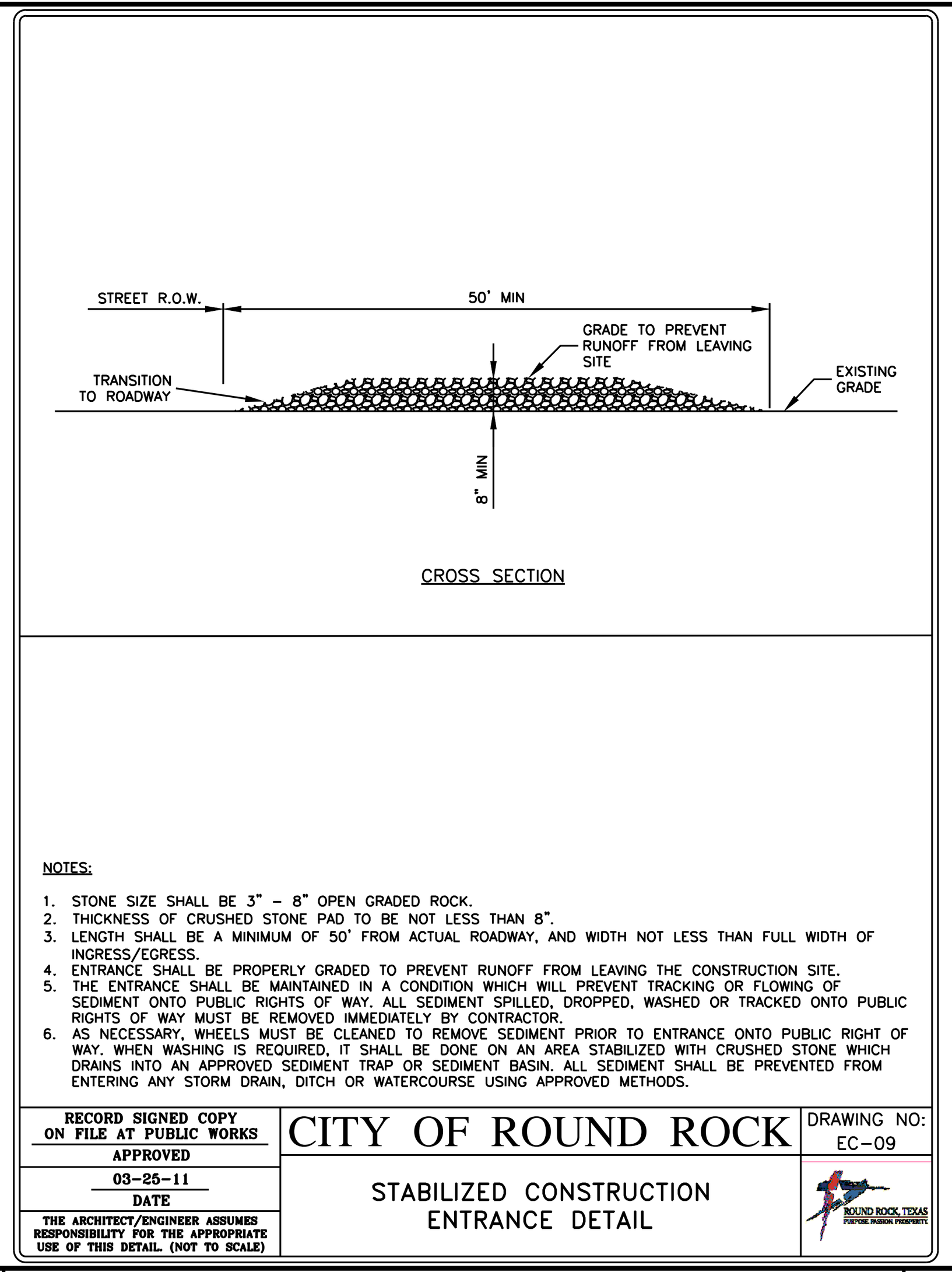
PAVING AND STRIPING PLAN

C64

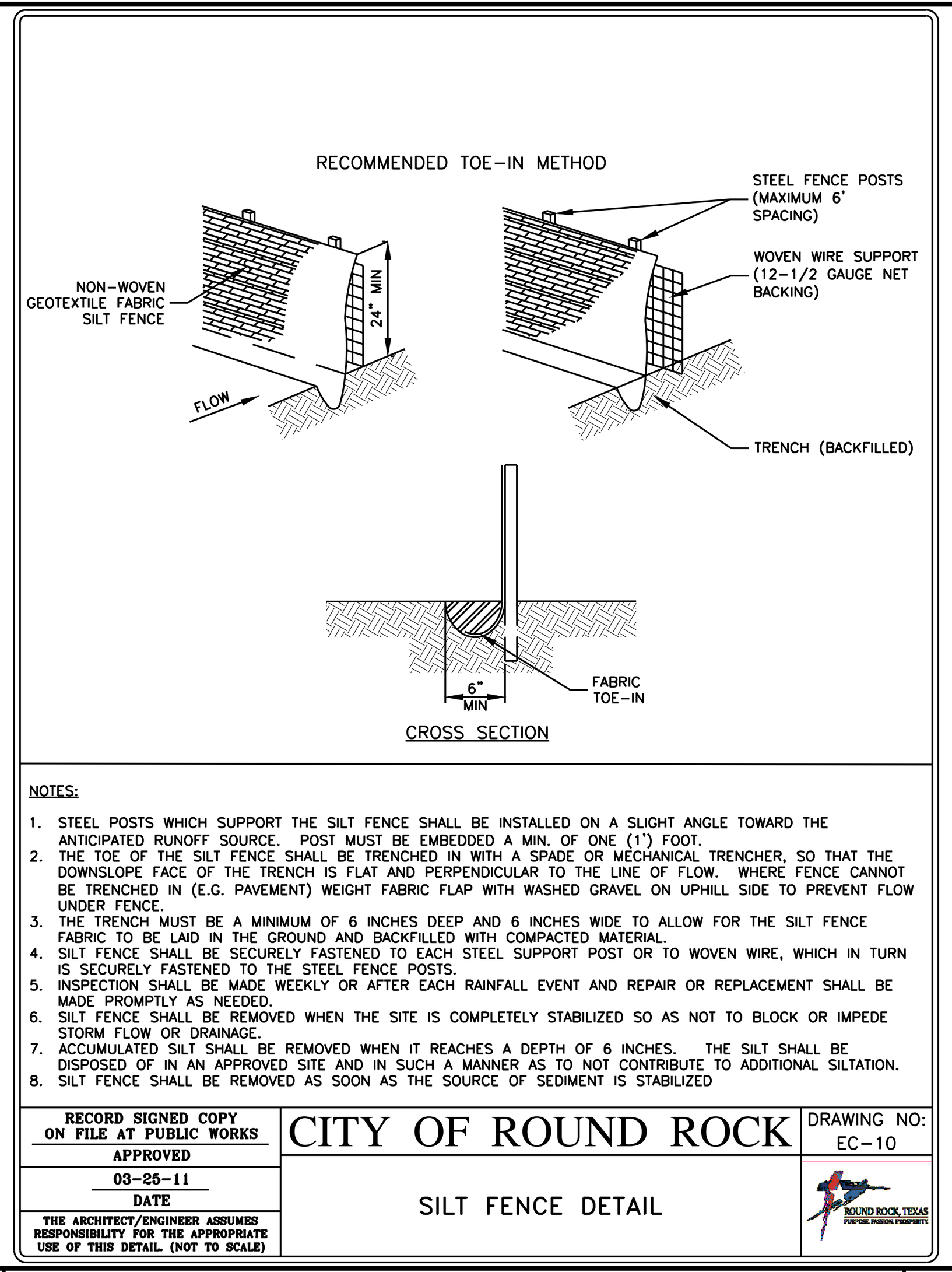
58

SDP2208-0002

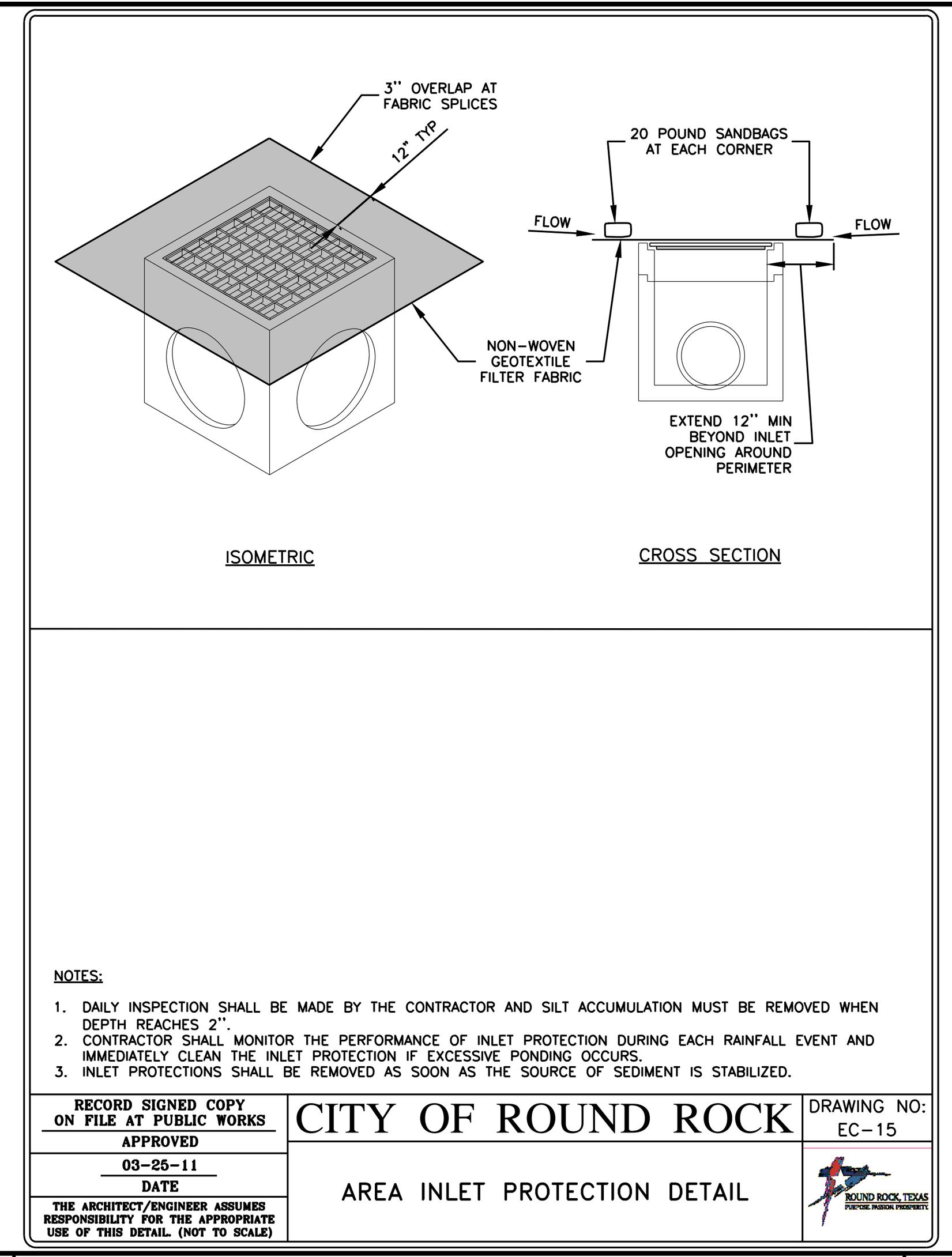
13-018.2C64, 4/30/2023 1:47:02 PM, TerryH



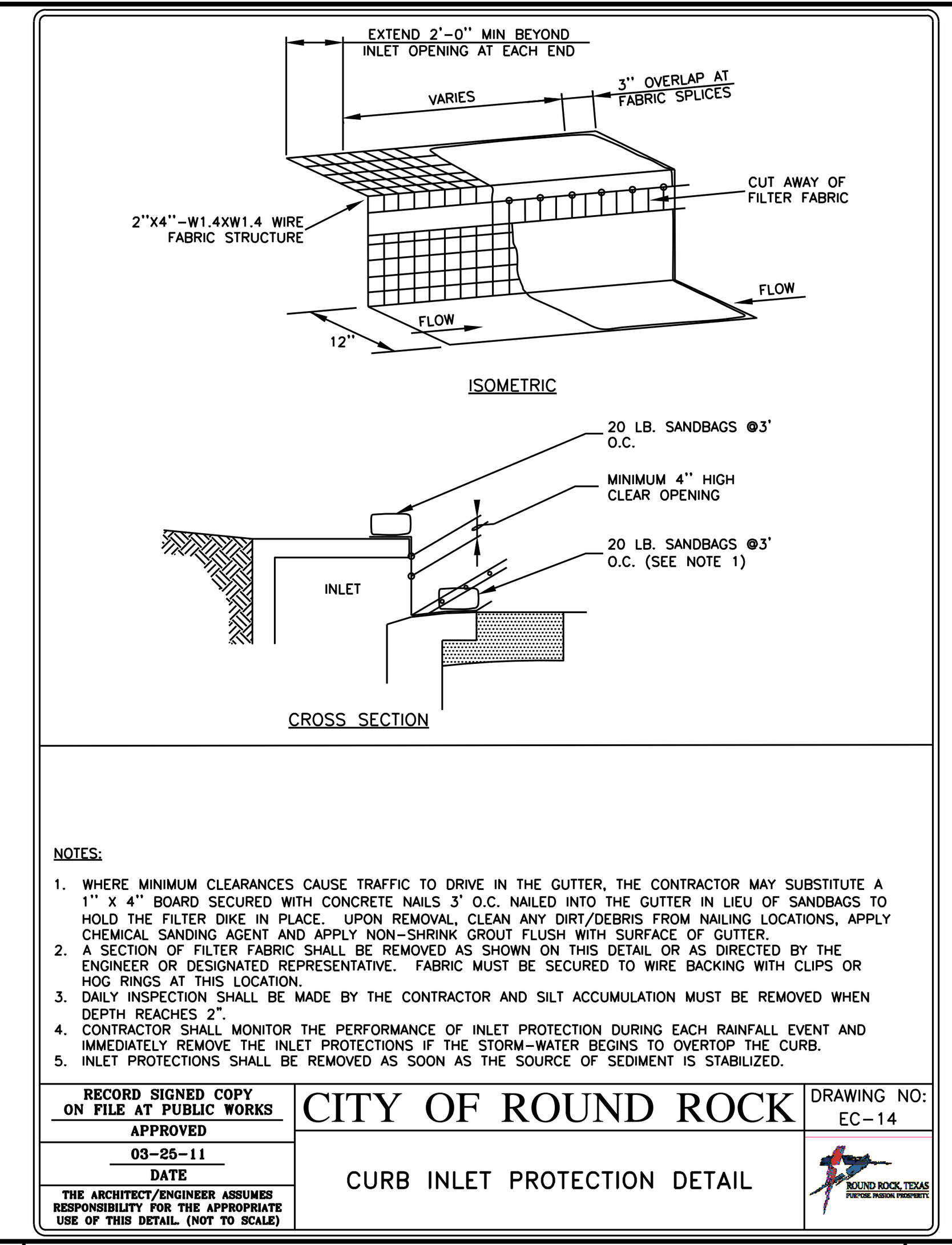
01 STABILIZED_CONSTRUCTION_ENTRANCE NTS



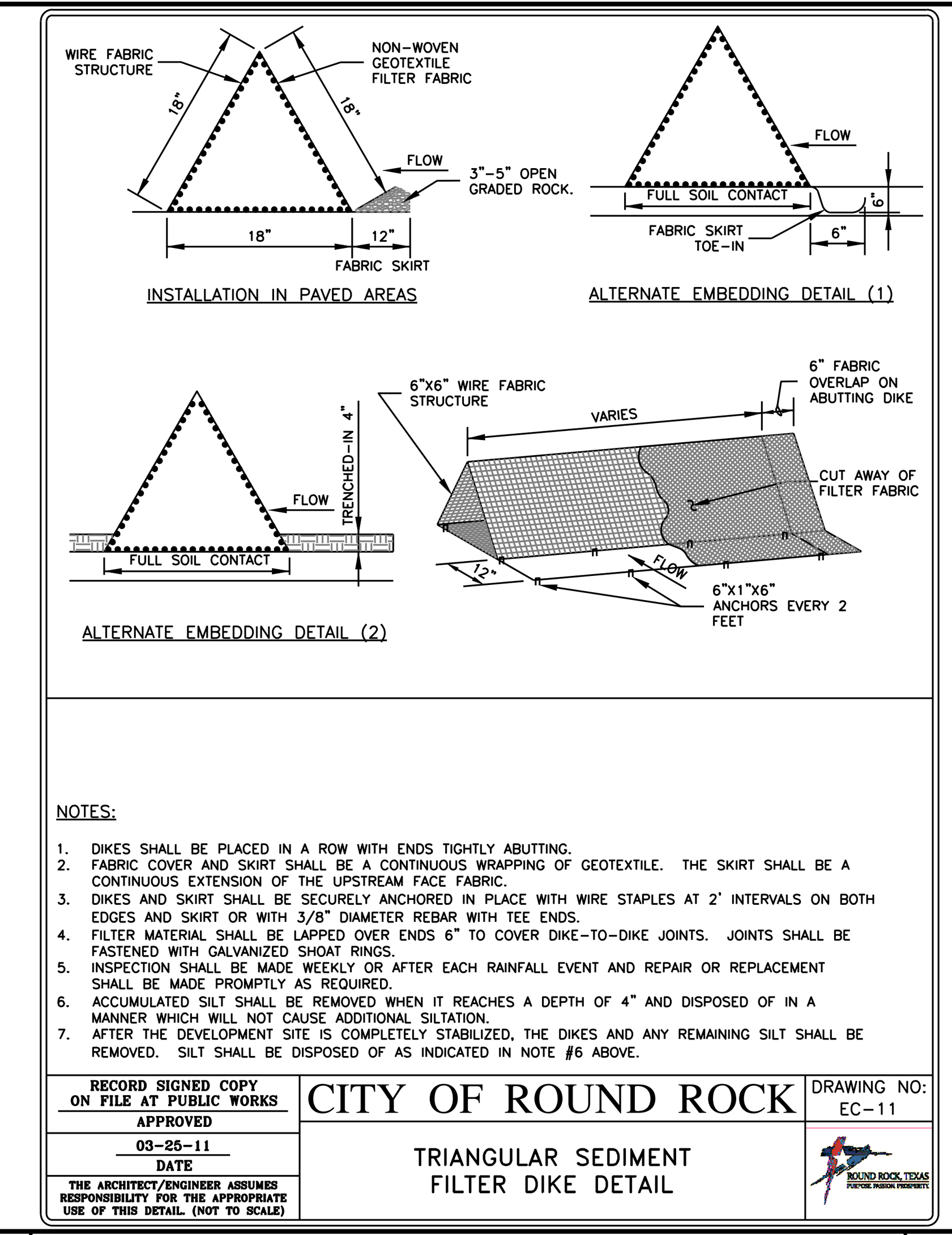
02 SILT FENCE NTS



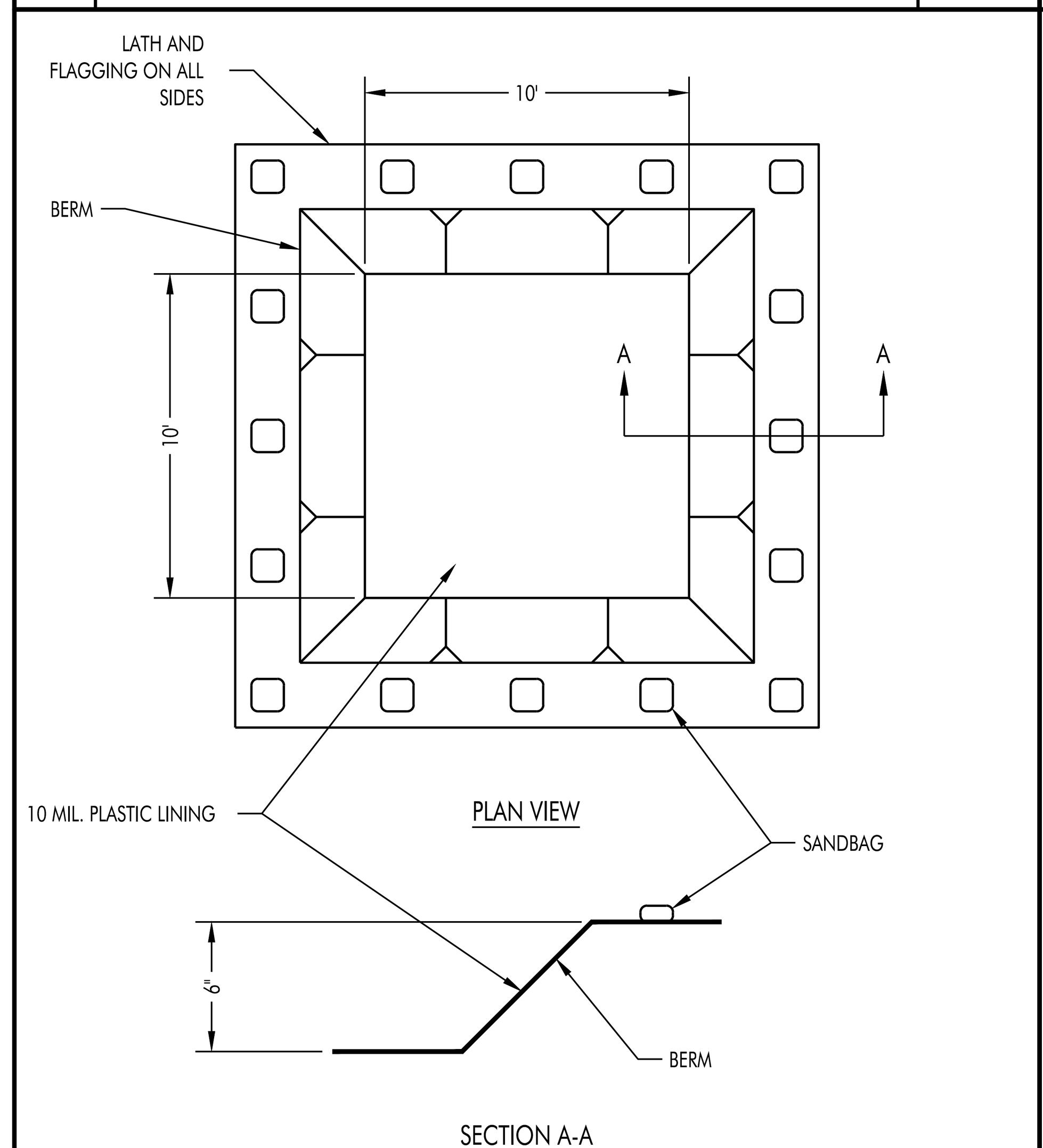
03 AREA INLET PROTECTION NTS



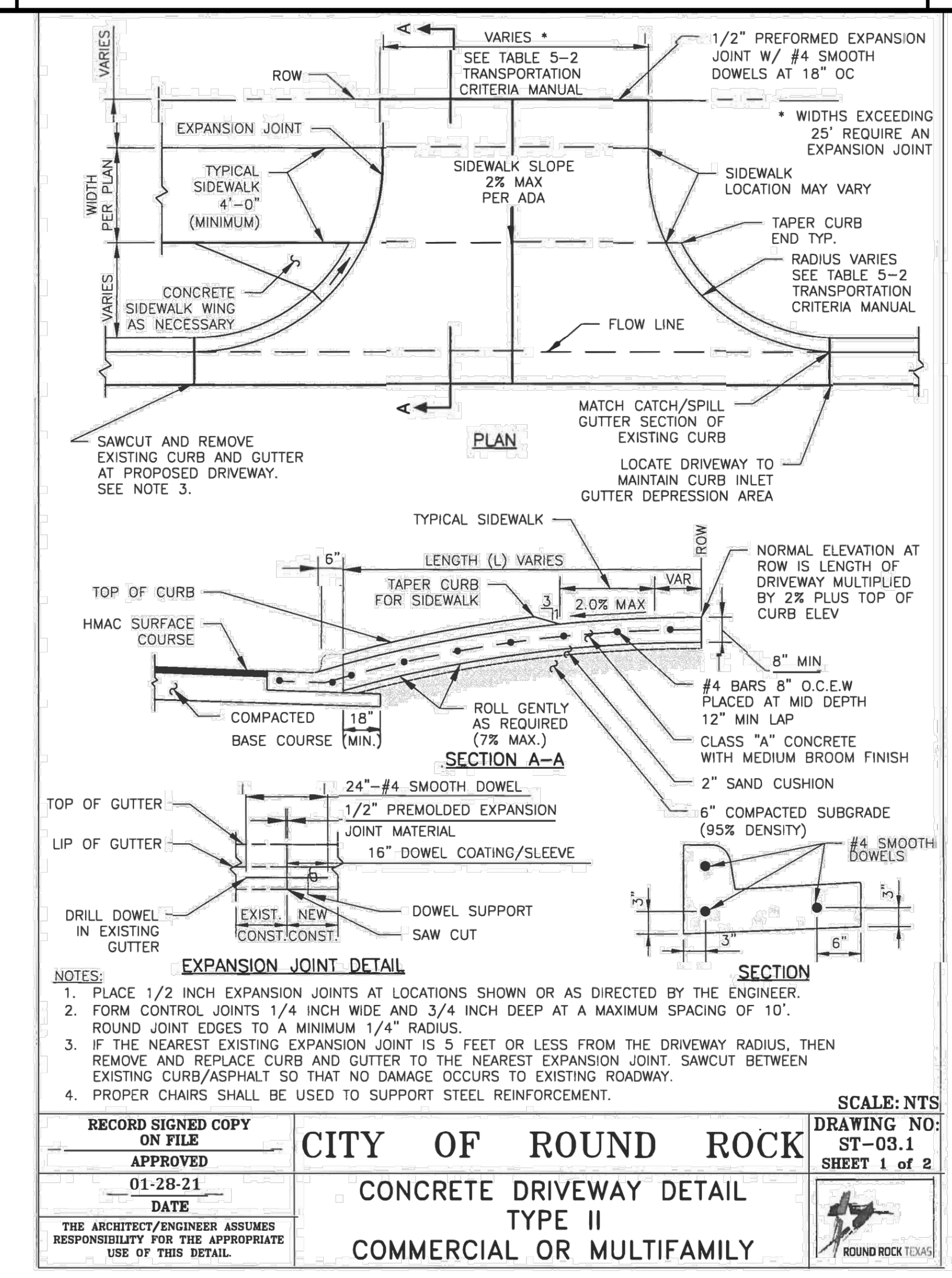
04 CURB_INLET_PROTECTION NTS



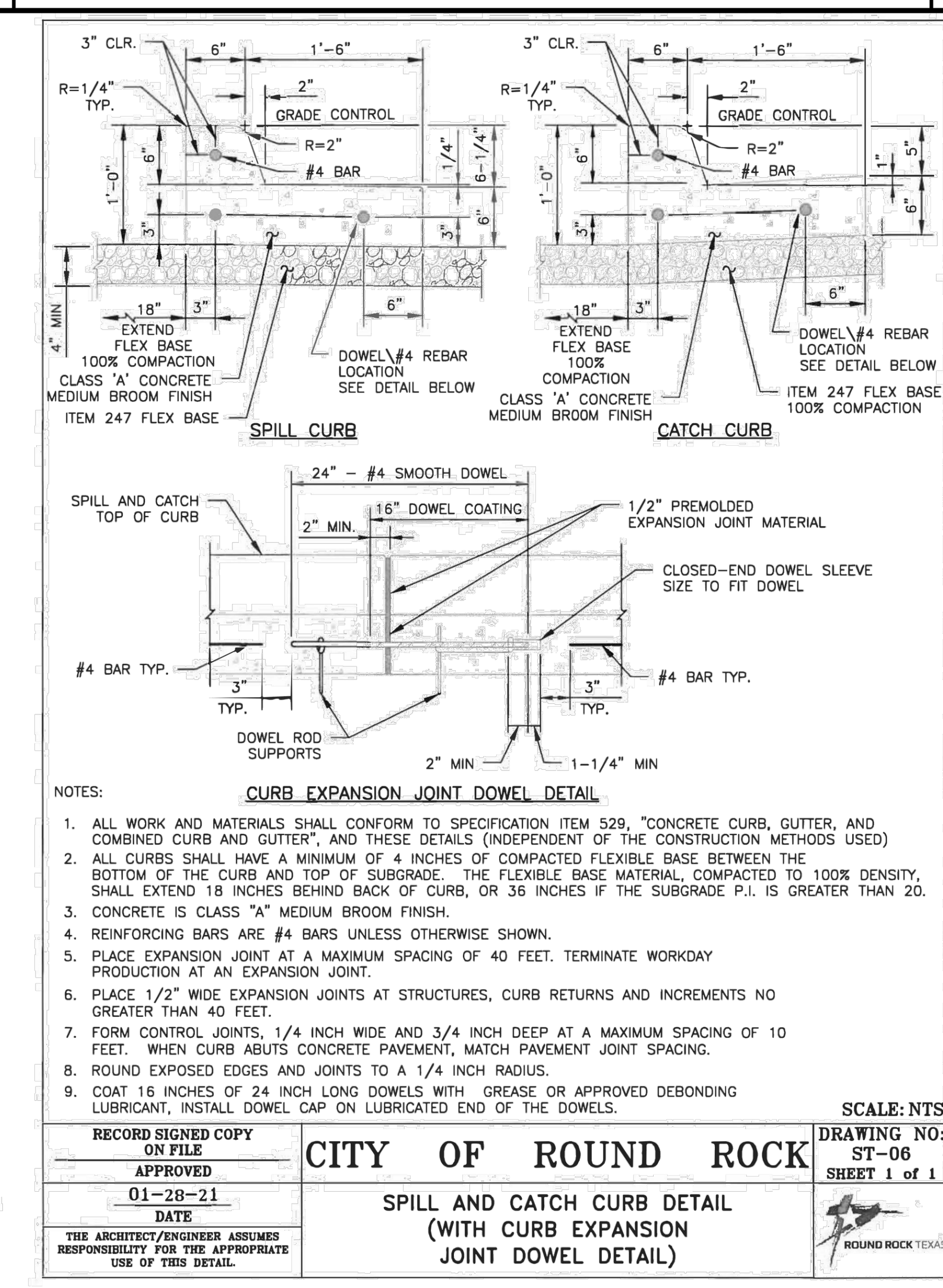
05 TRIANGULAR SEDIMENT FILTER DIKE NTS



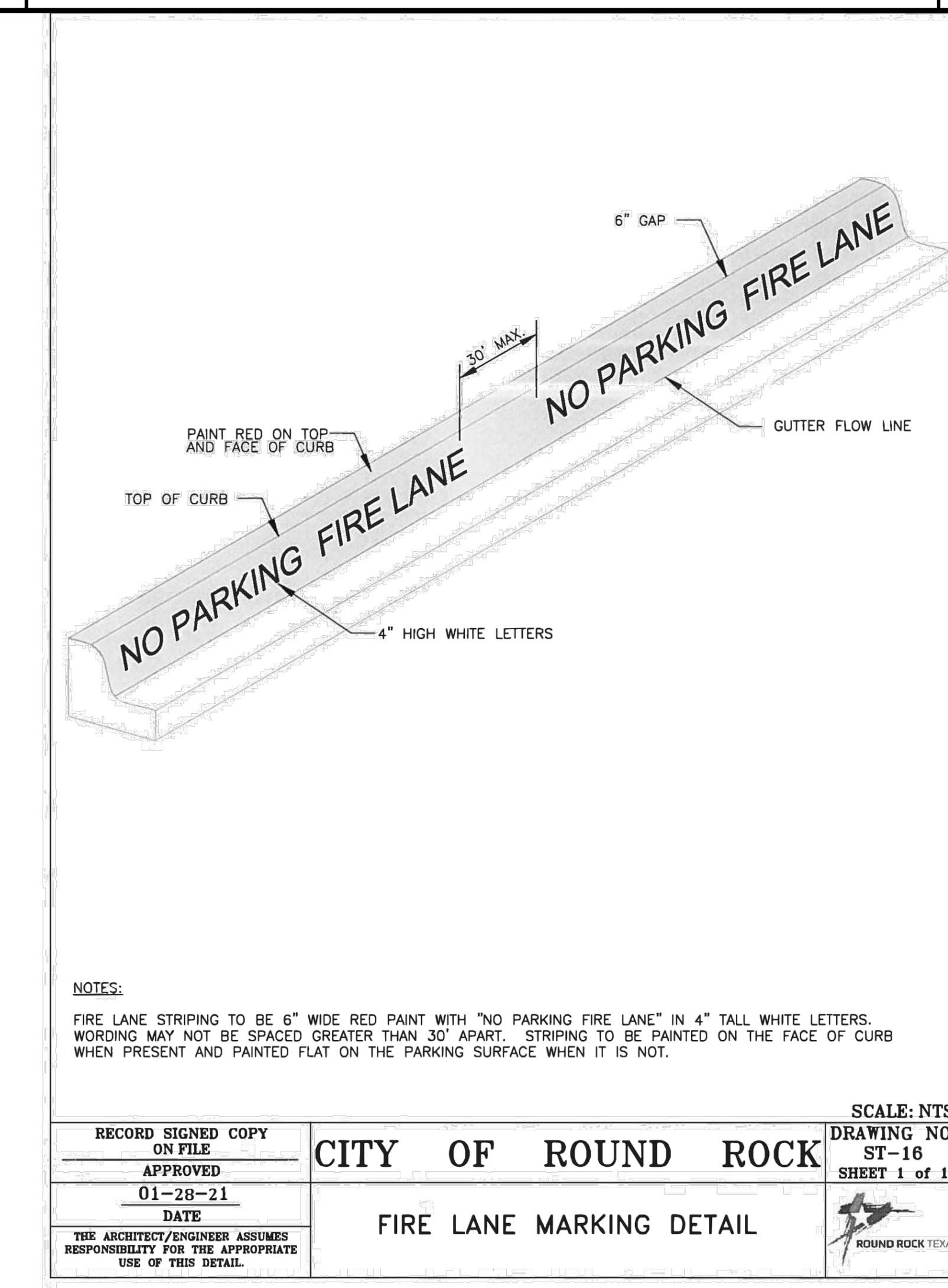
06 CONCRETE WASHOUT NTS



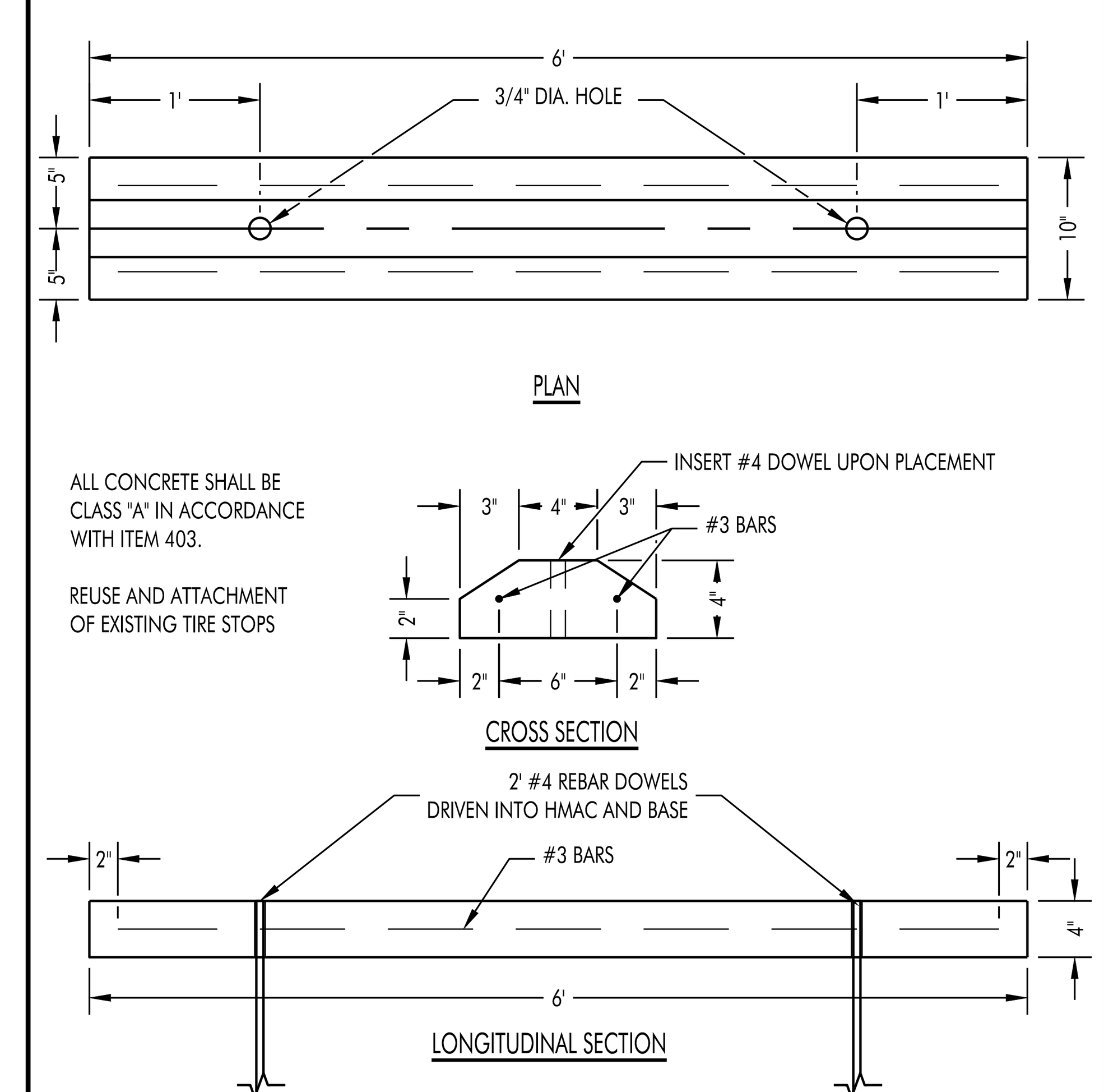
07 CONCRETE DRIVEWAY NTS



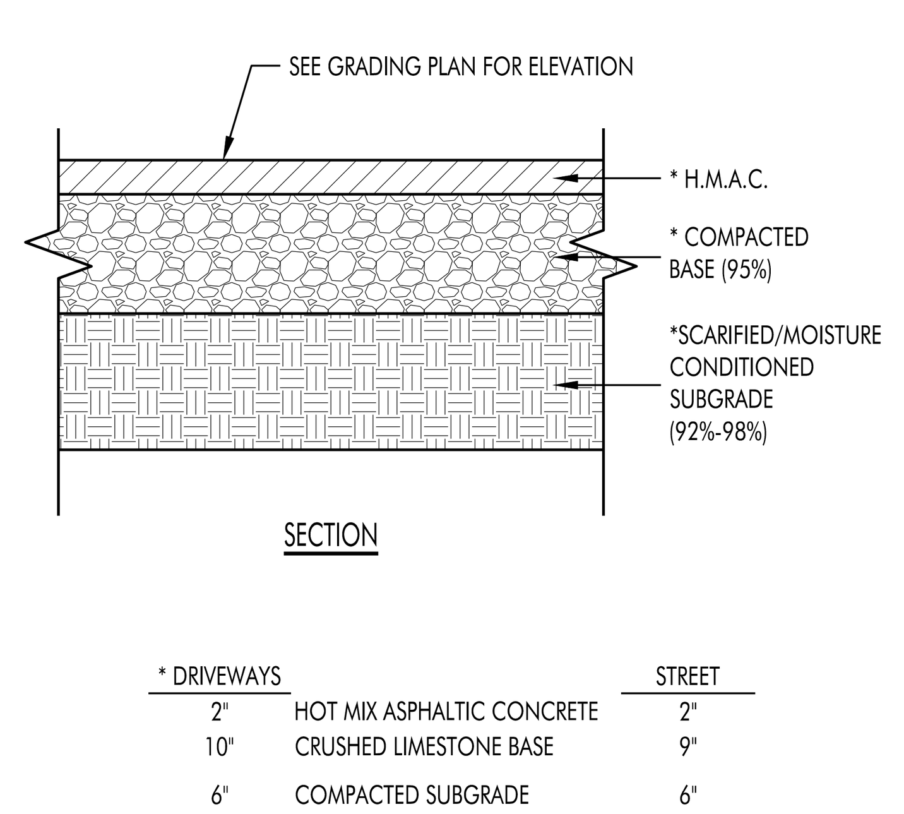
08 SPILL AND CATCH CURB NTS



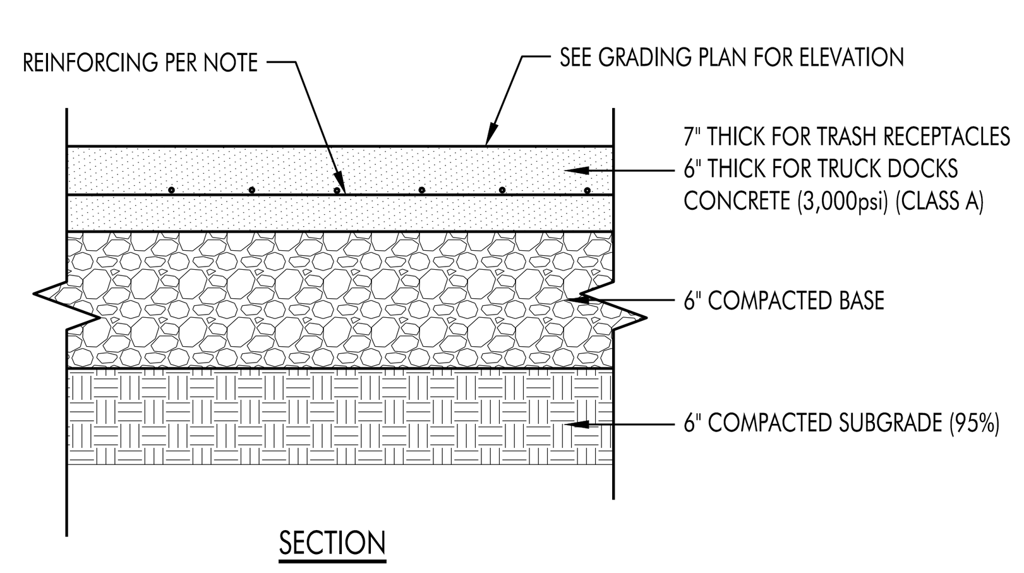
09 FIRE LANE MARKING NTS



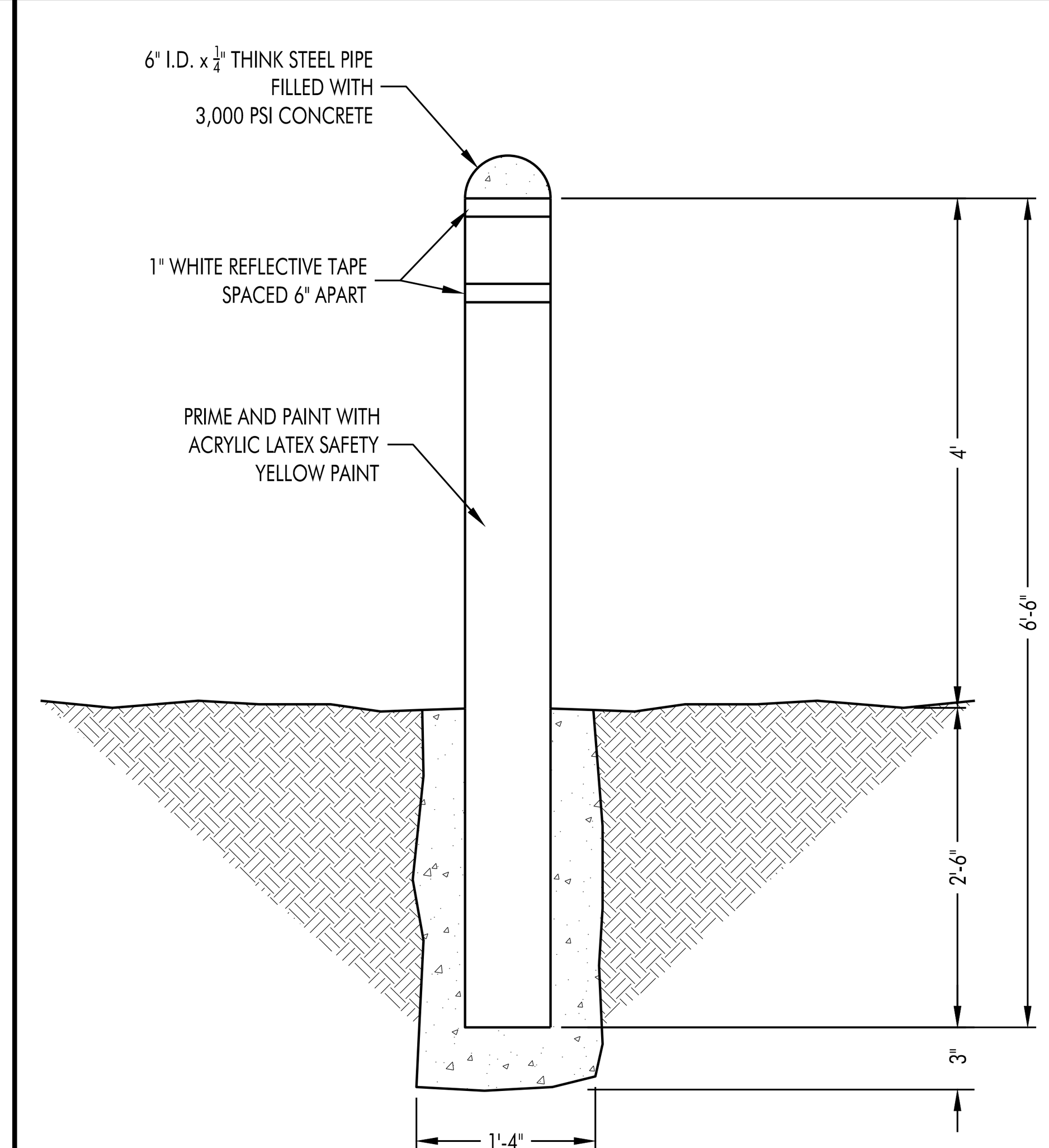
10 TIRE STOP NTS



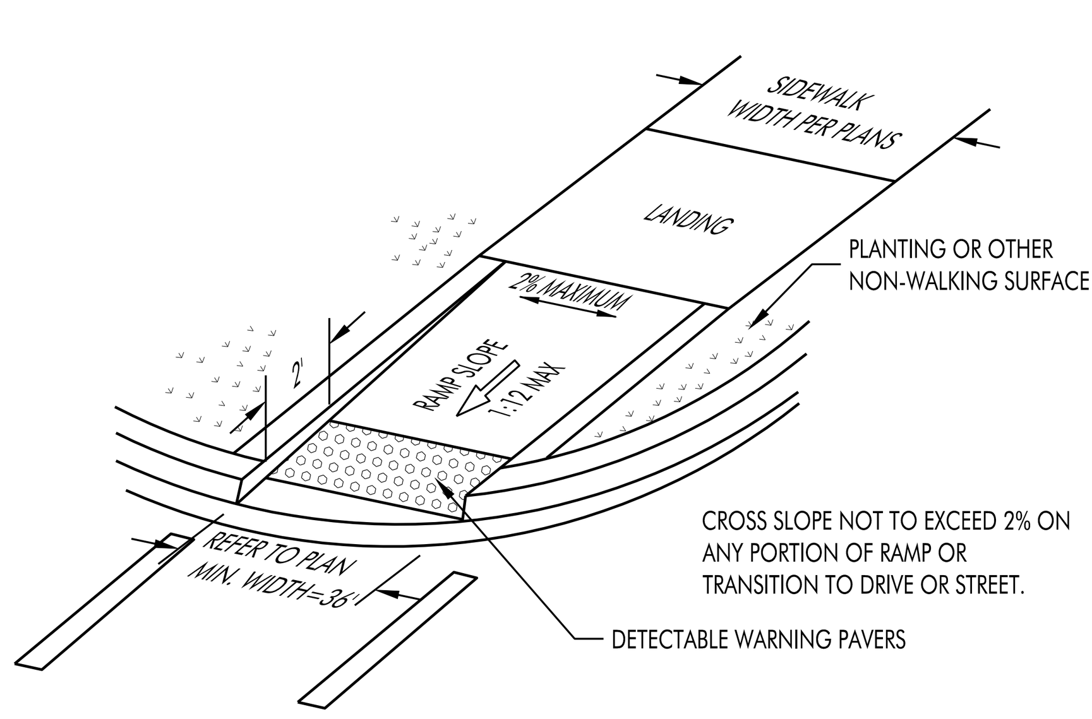
11 ASPHALT PAVING SECTION NTS



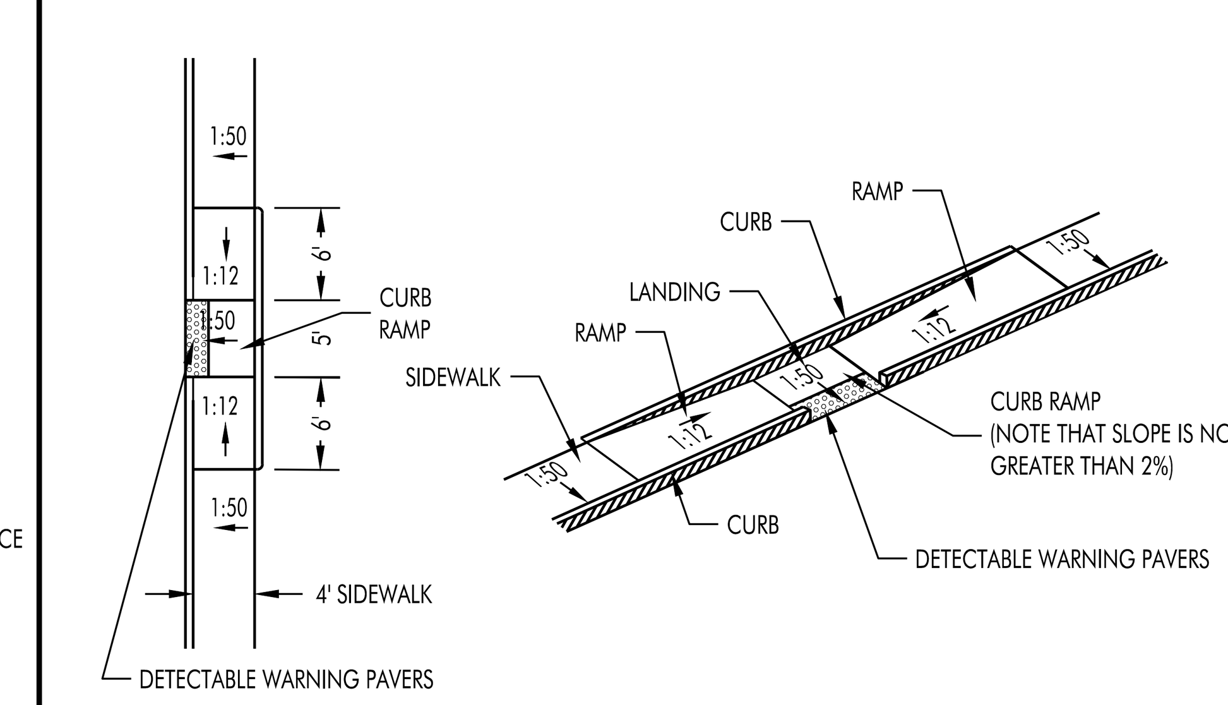
12 CONCRETE PAVING SECTION NTS



13 6" BOLLARD DETAIL NTS



15 CURB RAMP - PERPENDICULAR TO CURB NTS



14 CURB RAMP - PARALLEL TO CURB NTS

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Project Number: 22-019g
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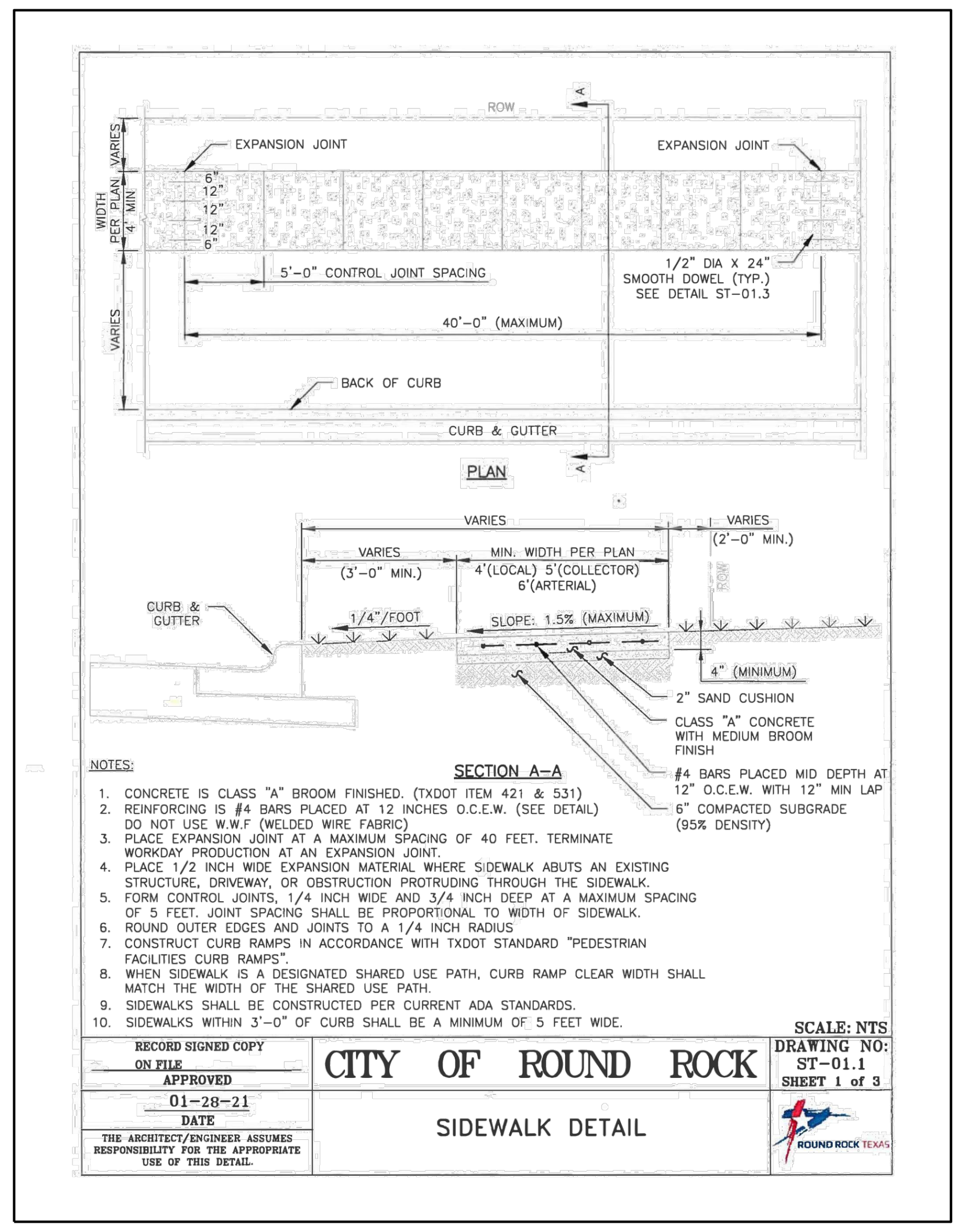
Checked By: RB

CONSTRUCTION DETAILS

C70

59

SDP2208-0002



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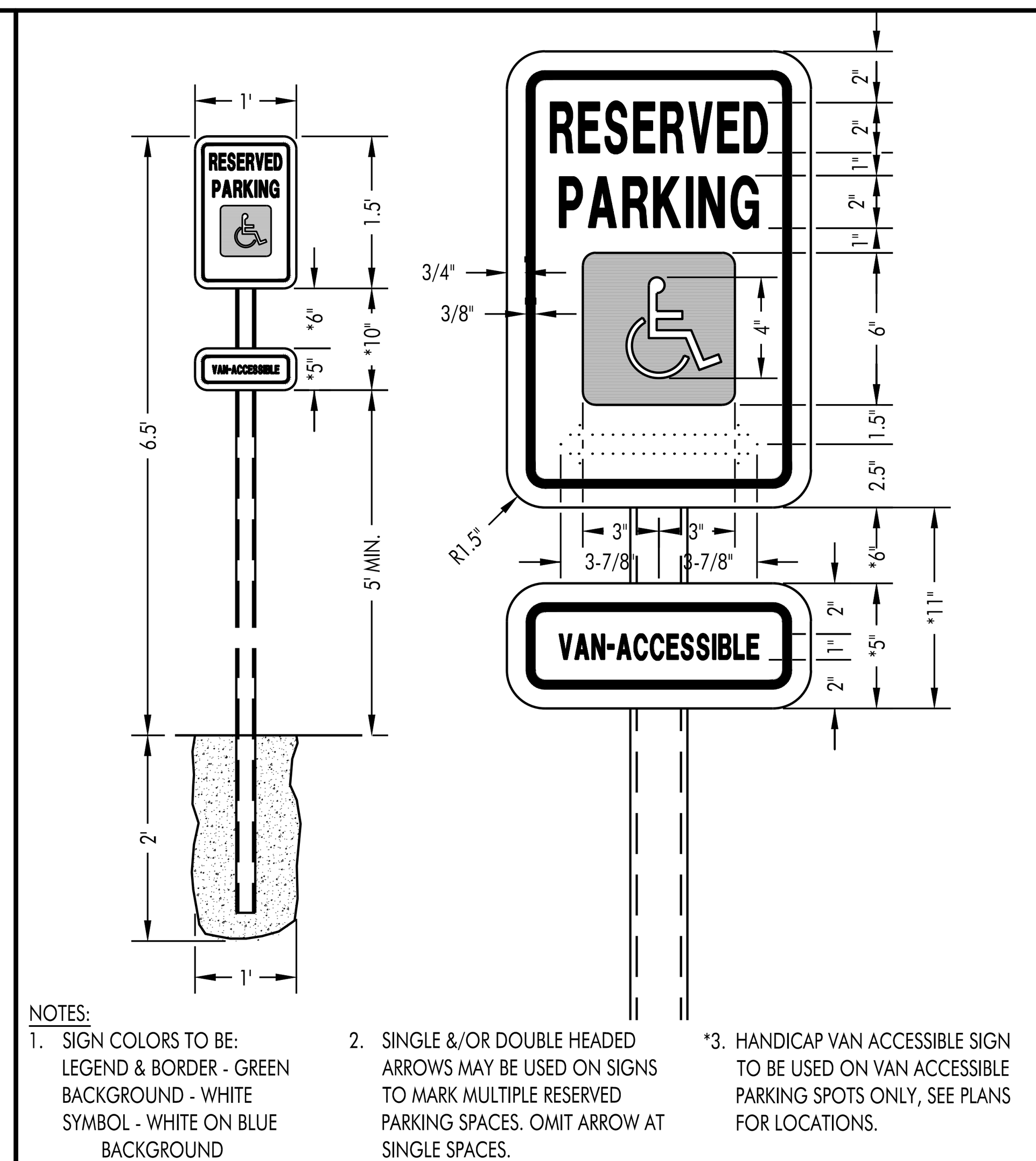
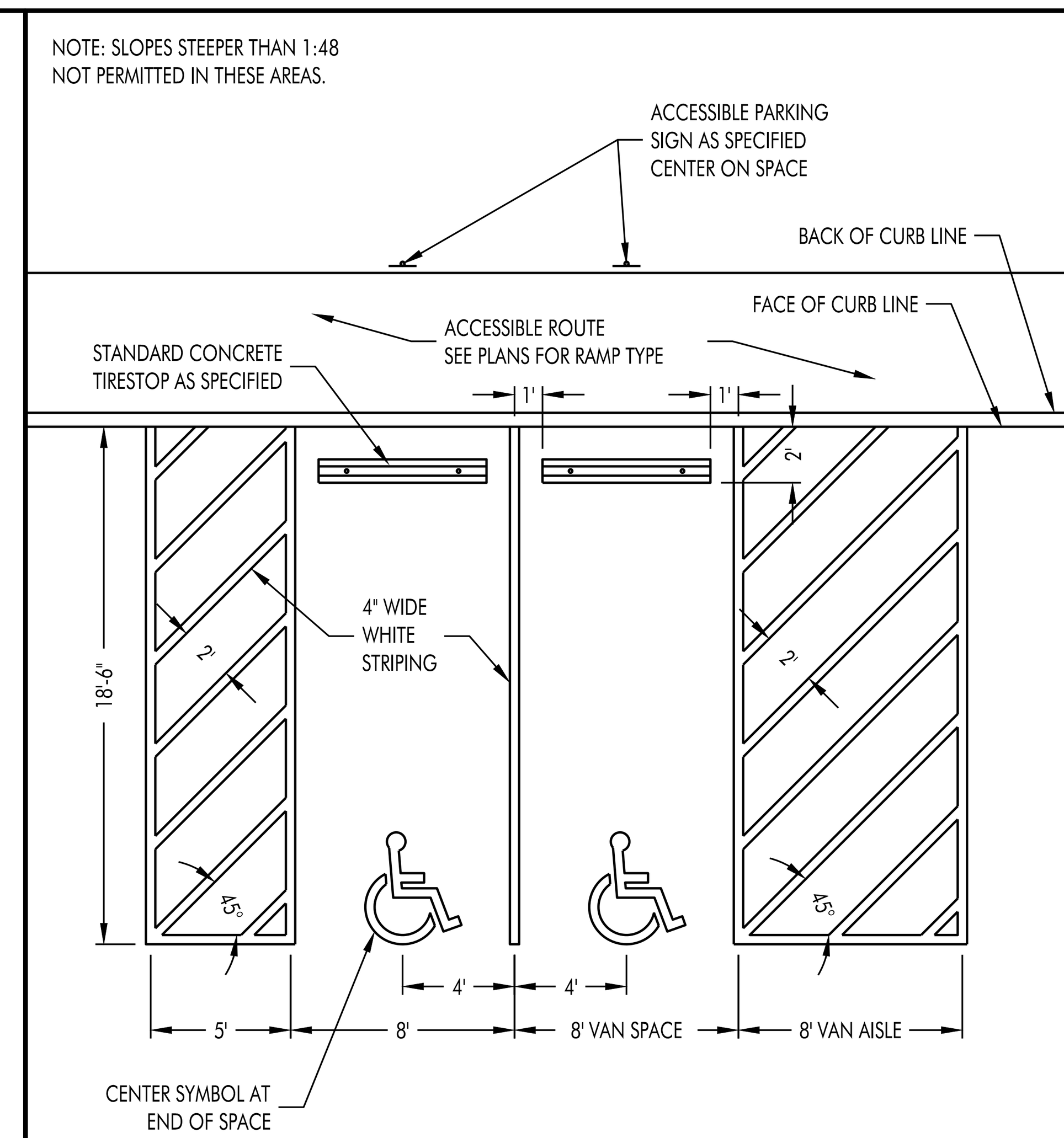
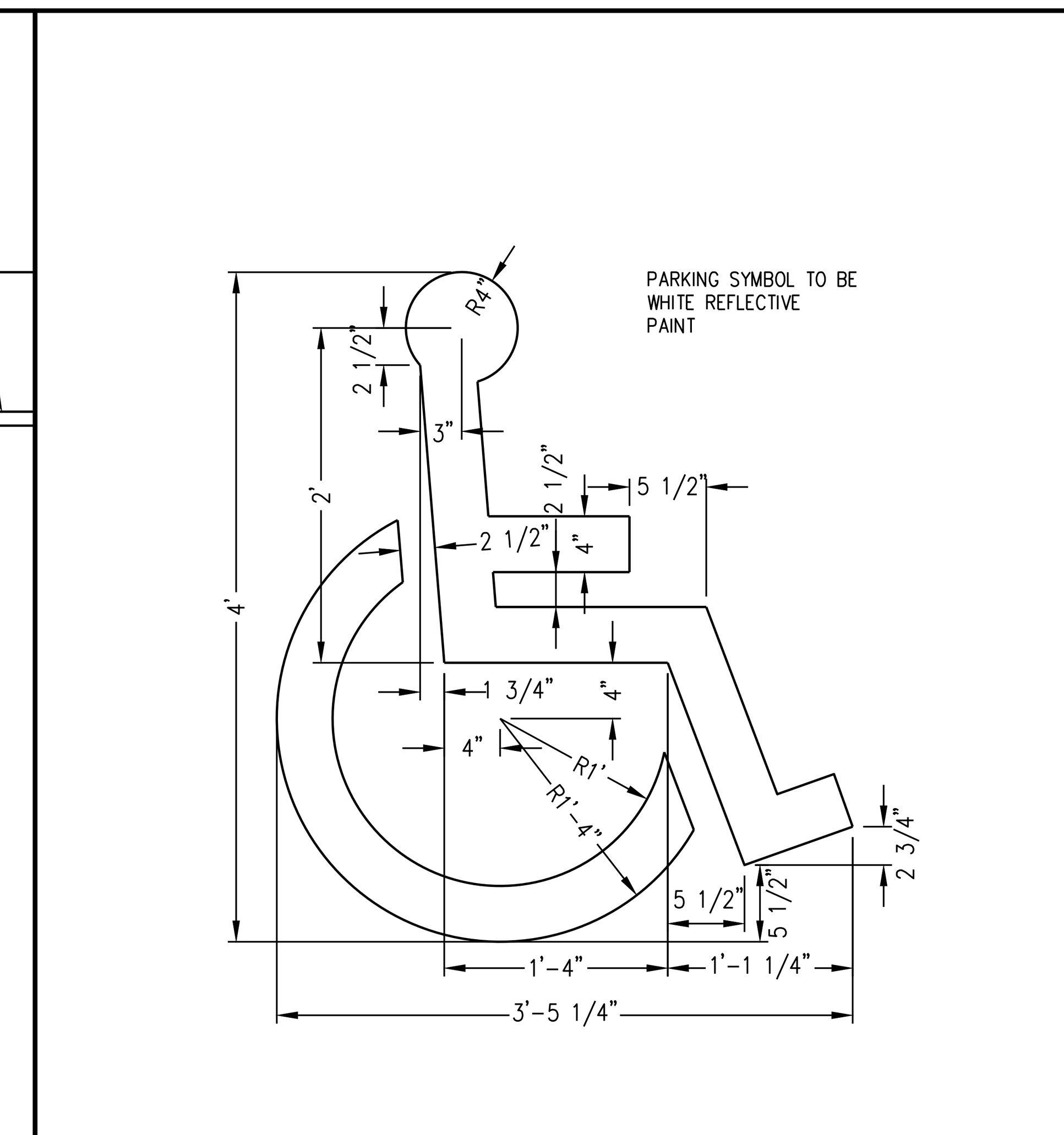


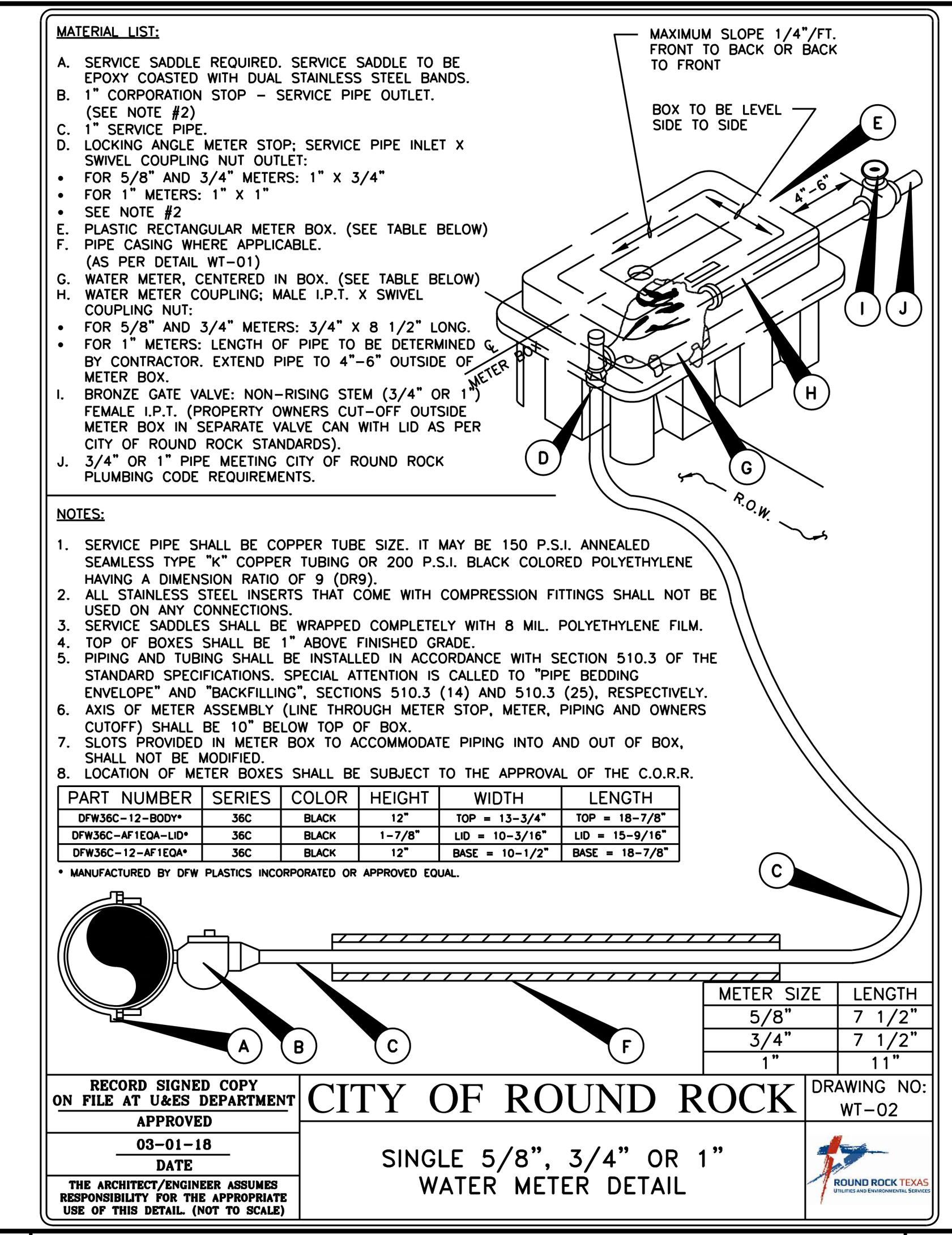
02 HANDICAP PARKING SIGN NTS



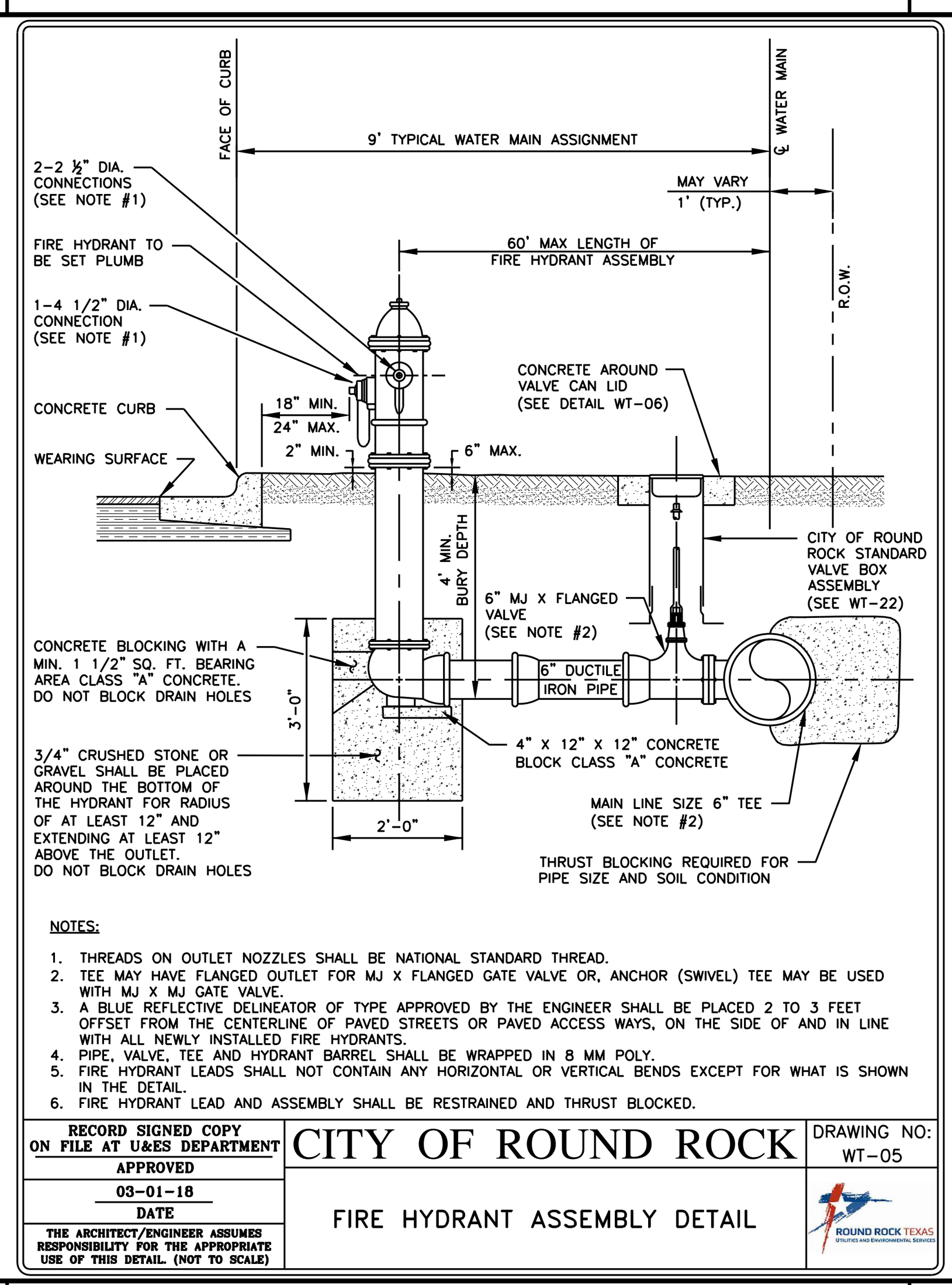
03 ADA PARKING STRIPING NTS



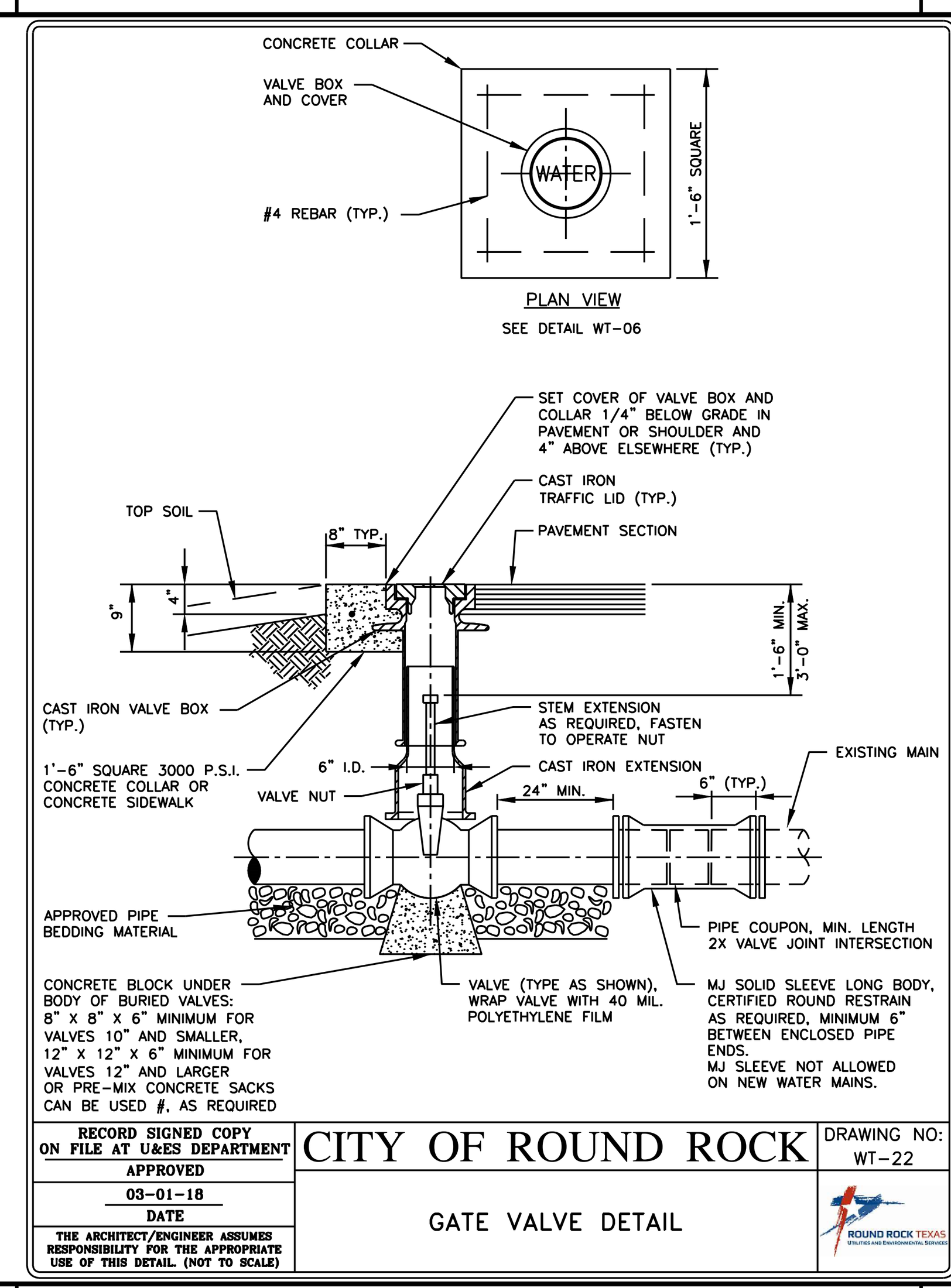
04 ADA PARKING SPACE SYMBOL NTS



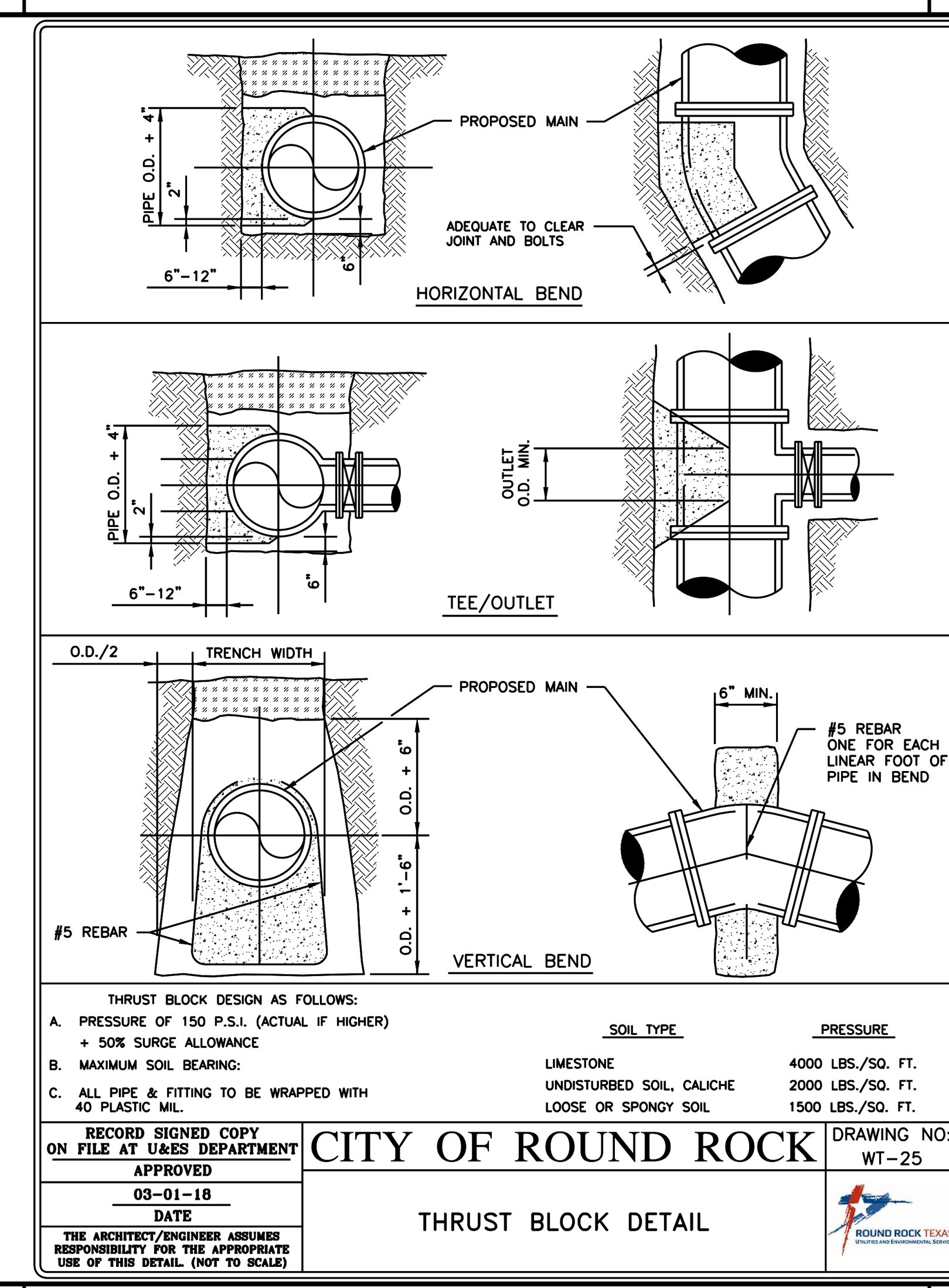
05 SINGLE_5-8_3-4_OR_1_WATER_METER NTS



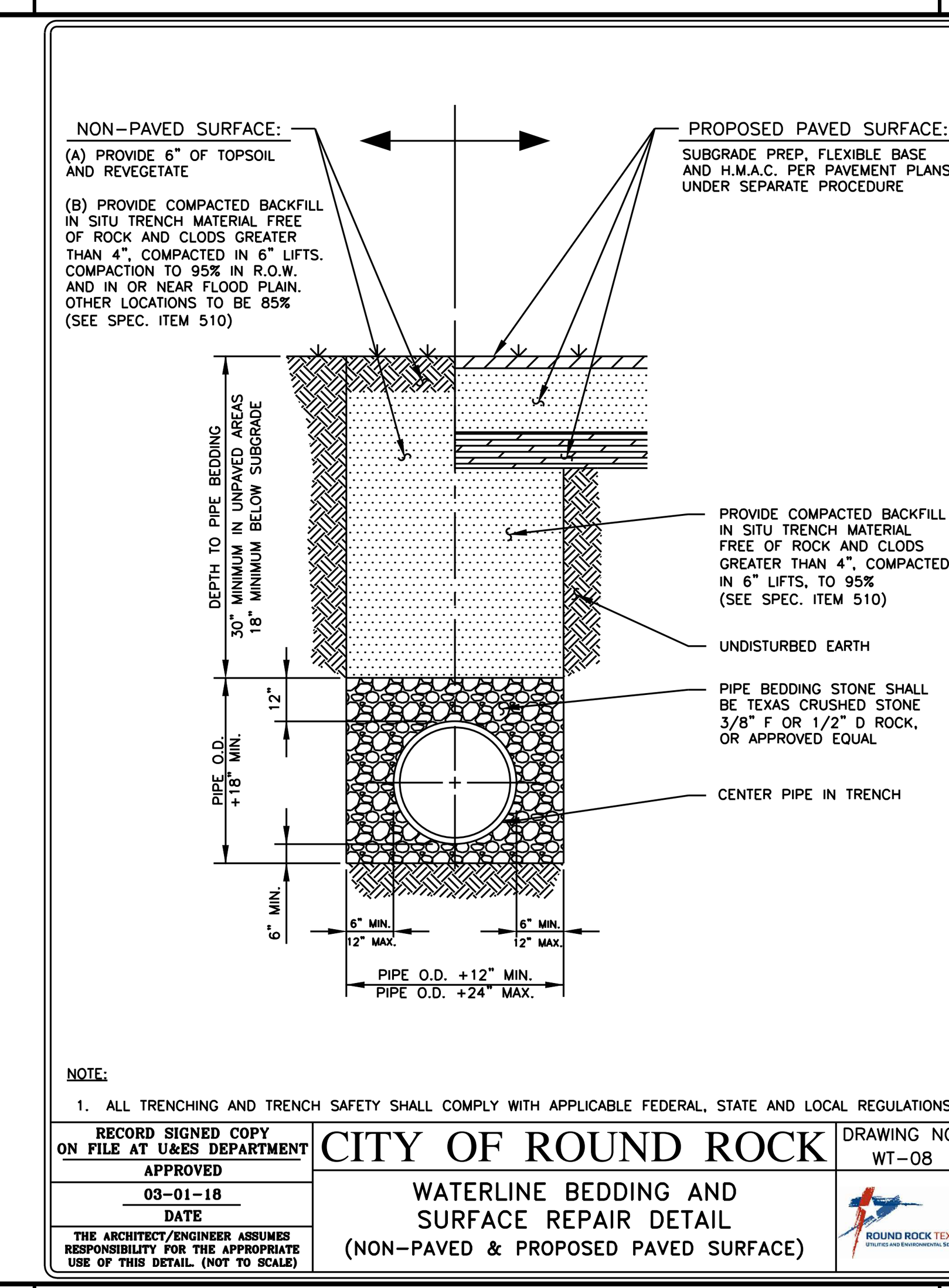
06 FIRE HYDRANT ASSEMBLY NTS



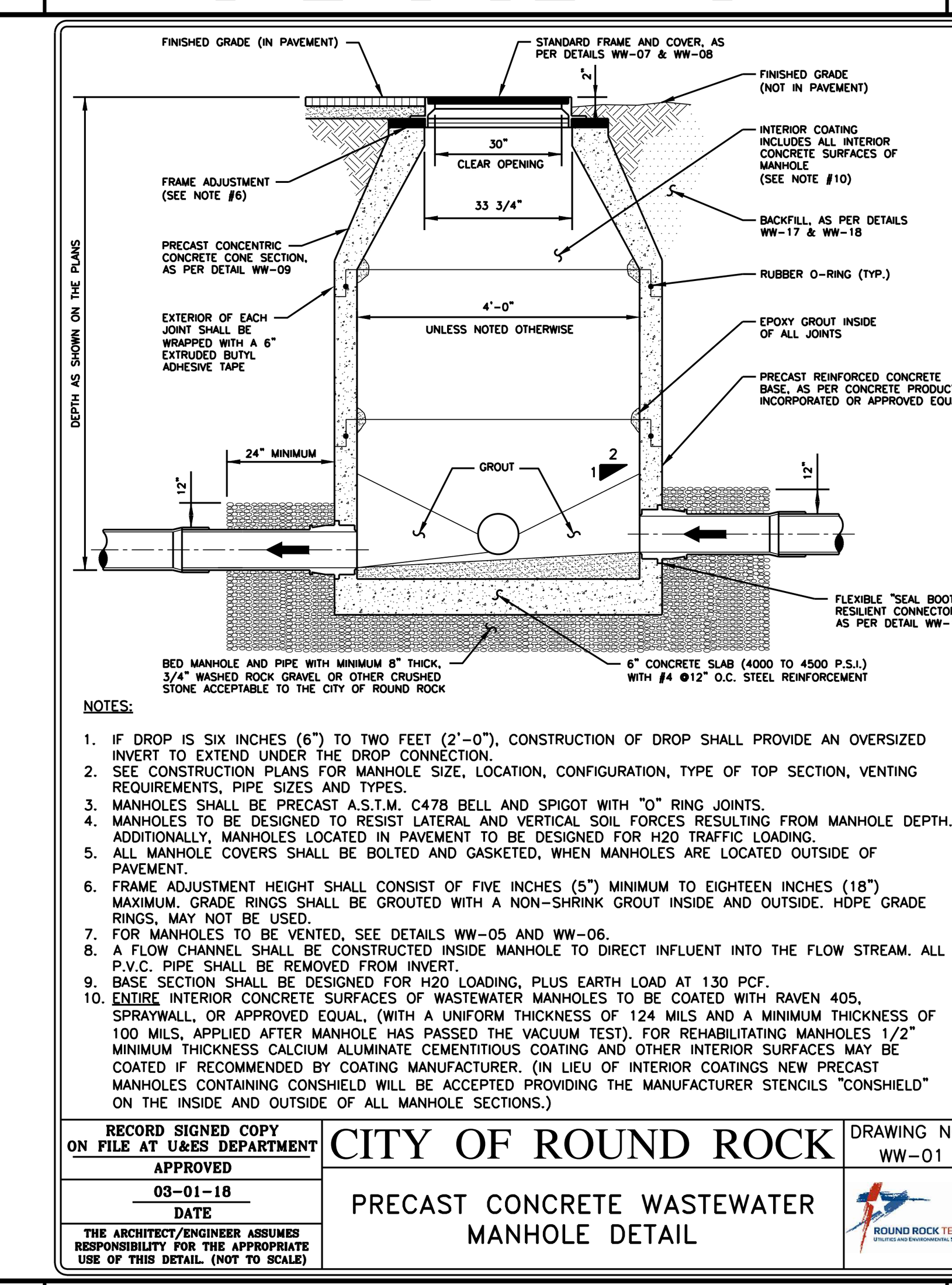
07 WT-22_-_GATE_VALVE NTS



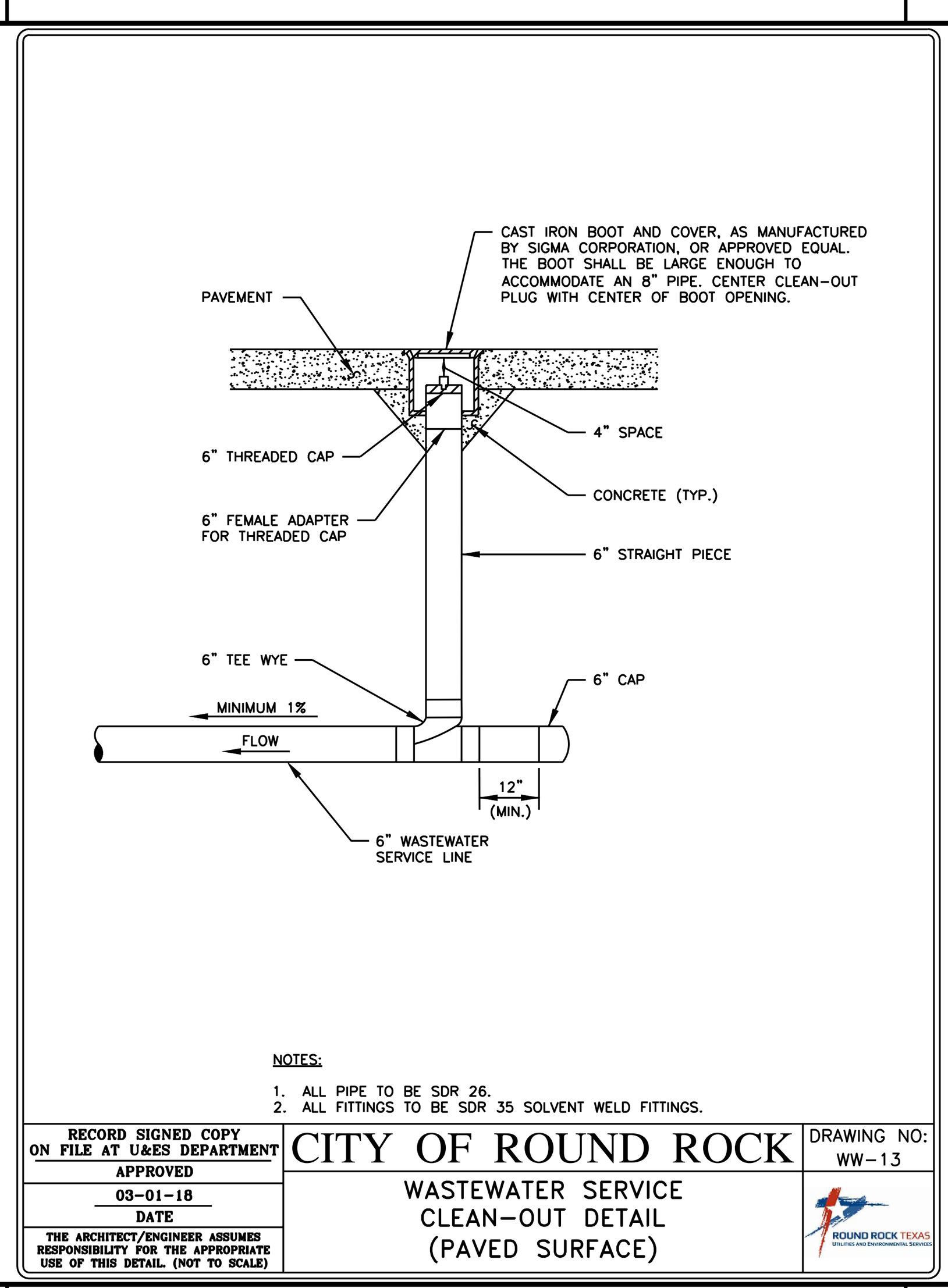
08 THRUST BLOCK NTS



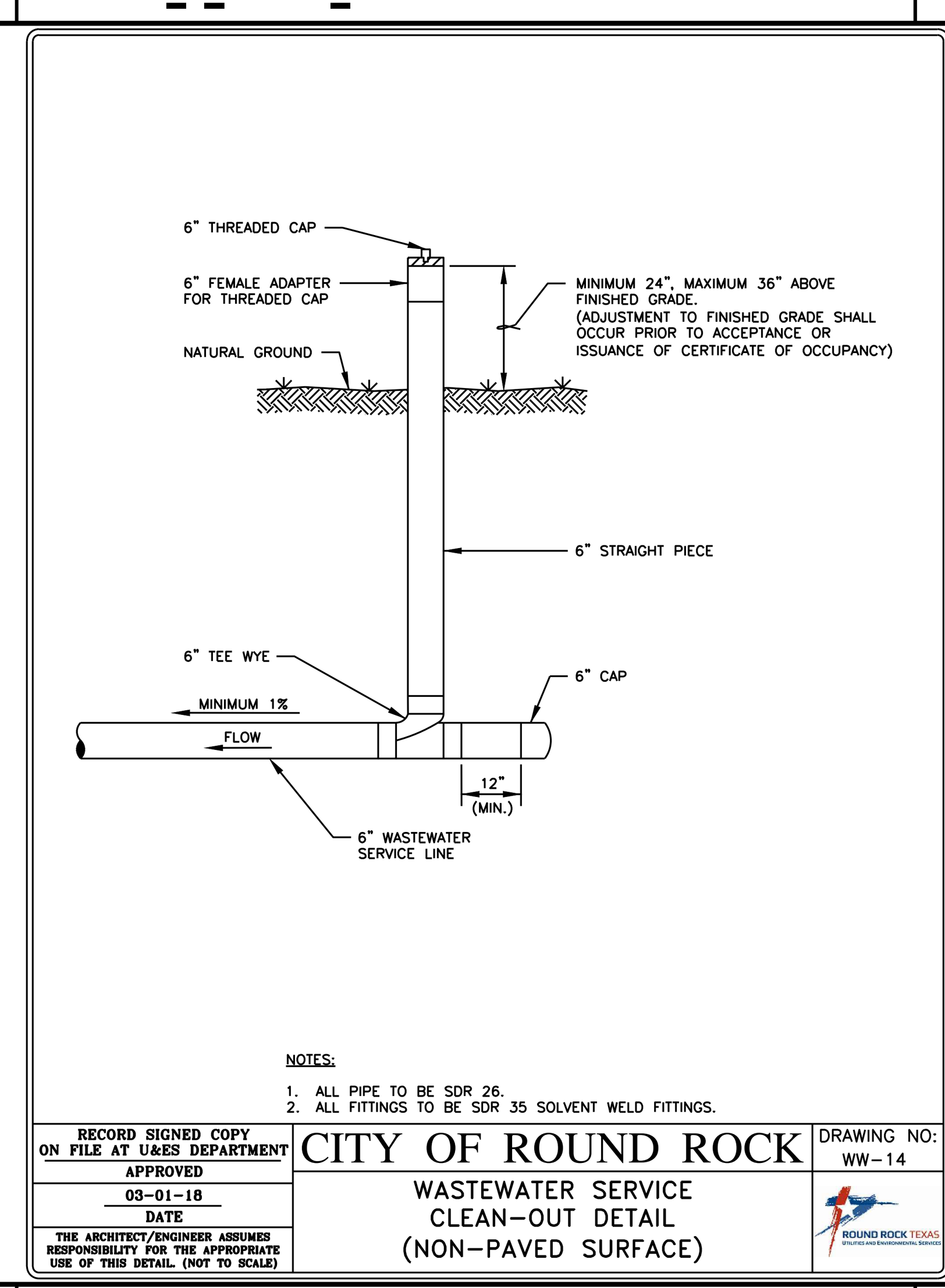
09 WATERLINE_BEDDING NTS



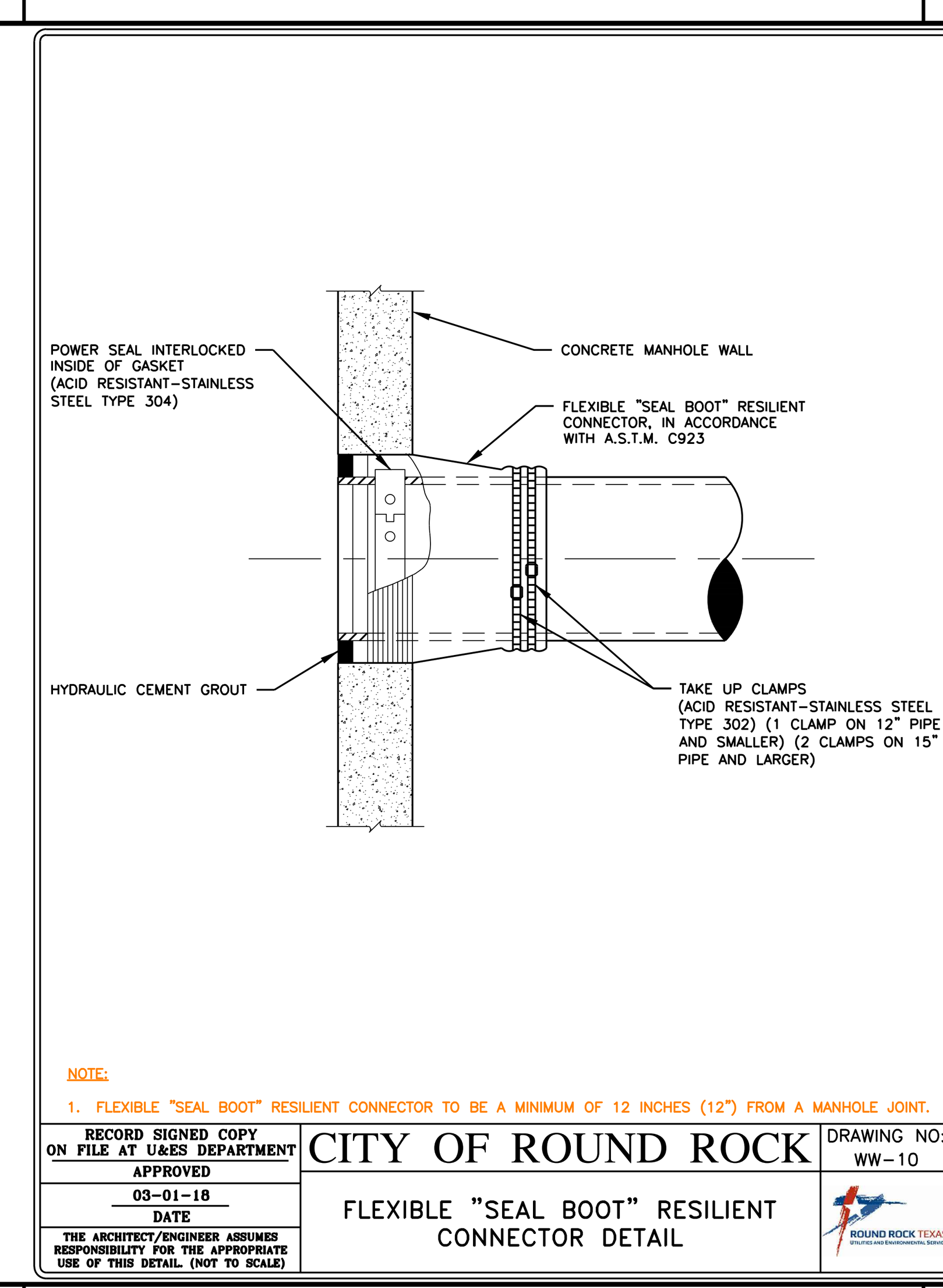
10 PRECAST WASTEWATER MANHOLE NTS



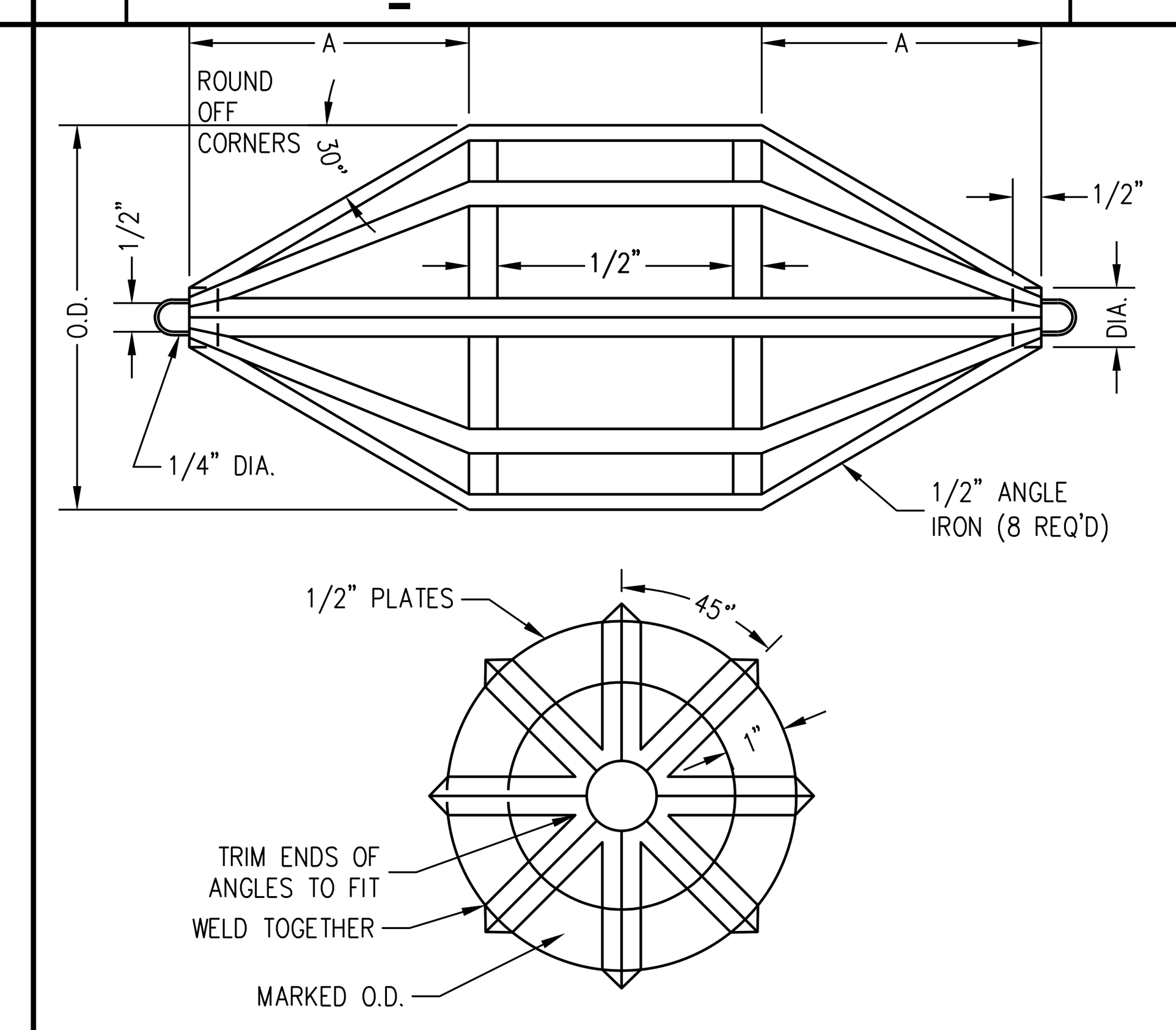
11 WASTEWATER_SERVICE_CLEAN_OUT_PAVED NTS



12 WASTEWATER_SERVICE_CLEAN_OUT_NON_PAVED NTS

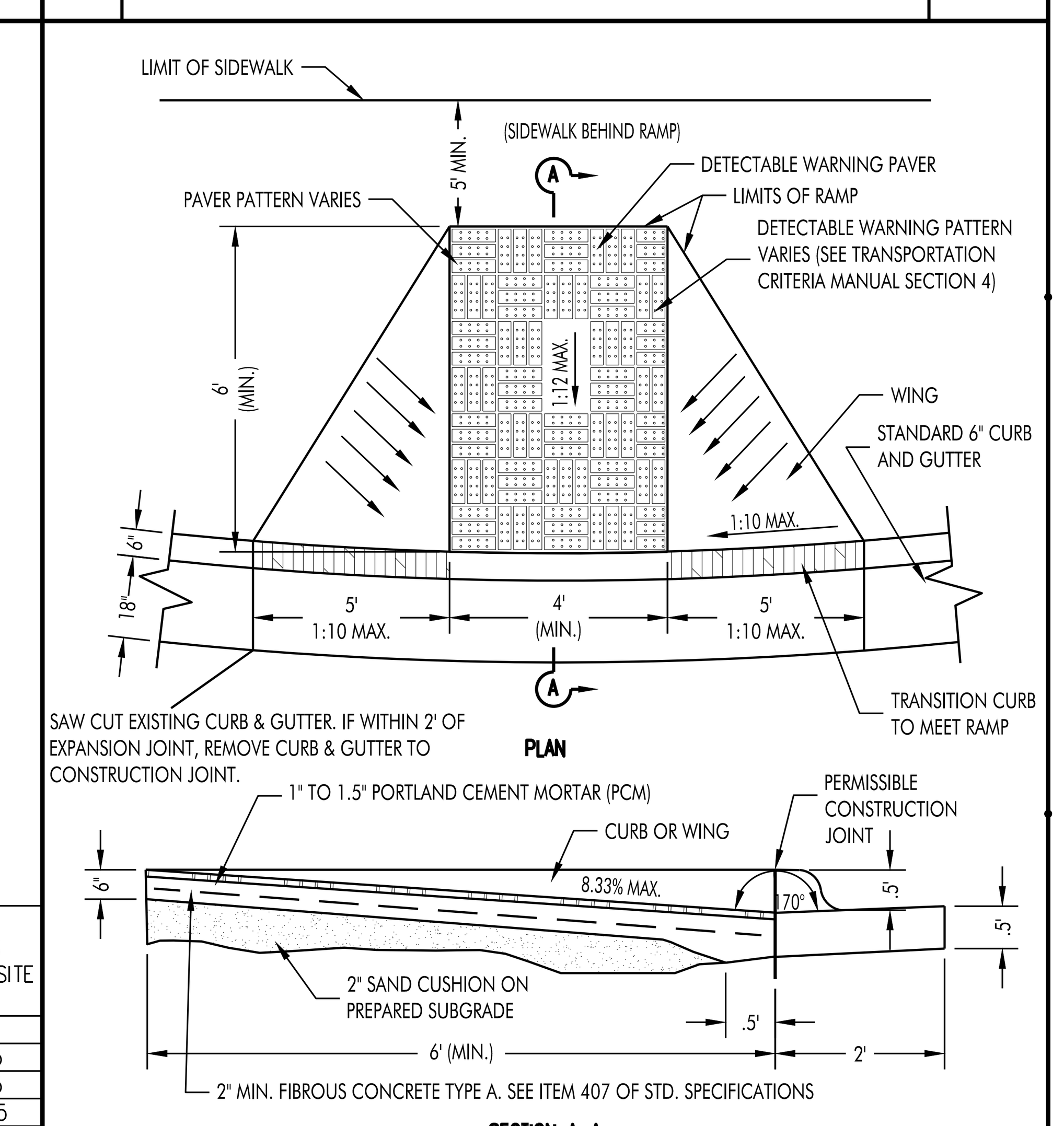


13 FLEXIBLE SEAL BOOT CONNECTOR NTS



	PVC ASTM 3033 SDR-41 PSP	PVC ASTM 3034 SDR-42 PSM	PVC ASTM 3034 SDR-35 PSM(XH)	ABS COMPOSITE ASTM 2680	PSP	PSM	PSM(XH)	ABS COMPOSITE
4	5.67	5.62	5.62		4.96	4.91	4.91	
6	7.37	7.60	78.52	7.36	6.66	6.89	6.81	6.65
6	9.22	9.50	9.41	0.26	8.51	8.79	8.70	8.55
8	11.06	11.01	11.19	11.18	10.35	10.60	10.46	10.45
9	13.82			14.01	13.11			13.30

14 MANDREL NTS



15 PEDESTRIAN RAMP NTS

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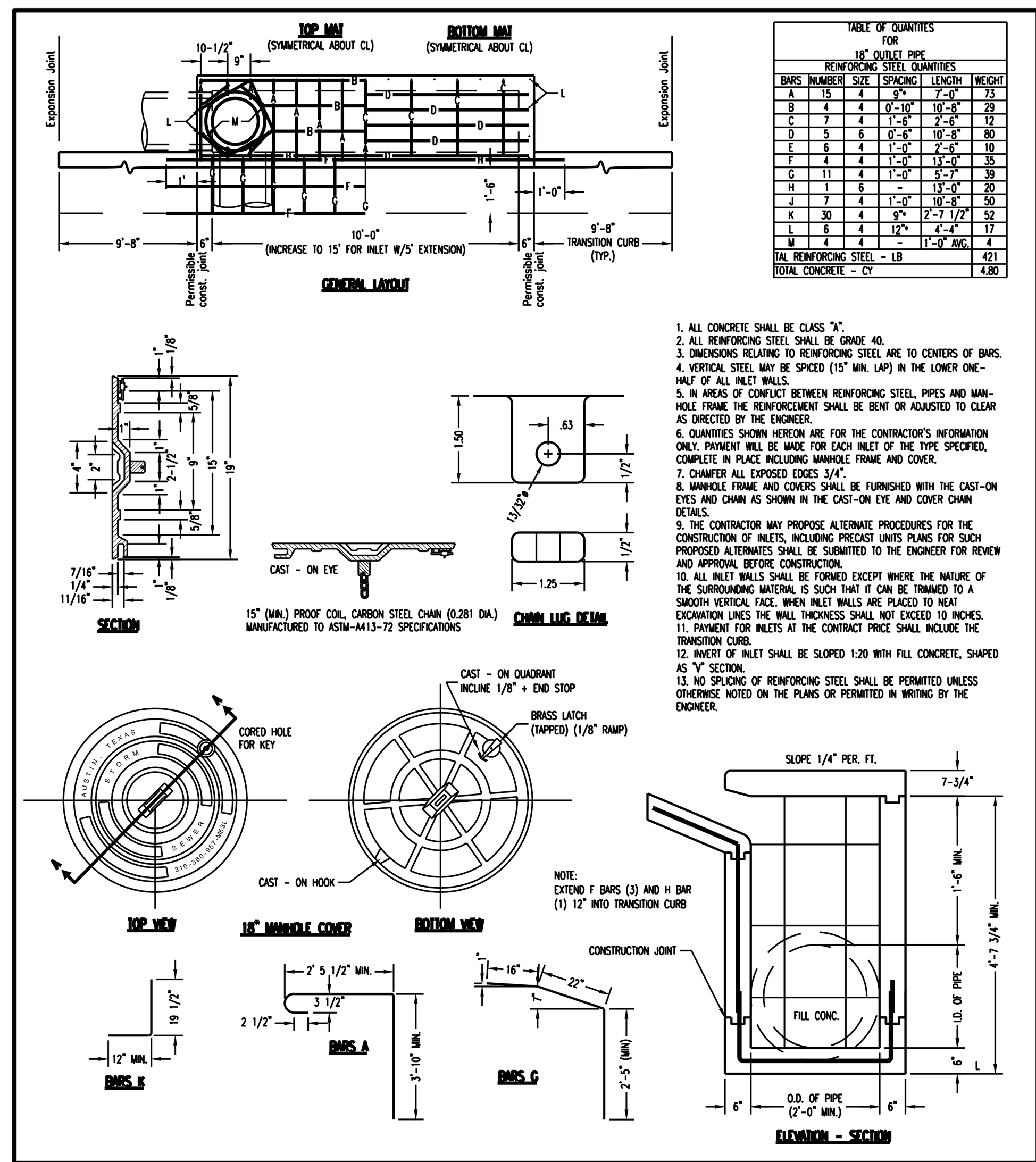
ESC & UTILITY DETAILS

C71

60

SDP2208-0002

13-018.2C71, 4/30/2023 1:47:57 PM, TerryH



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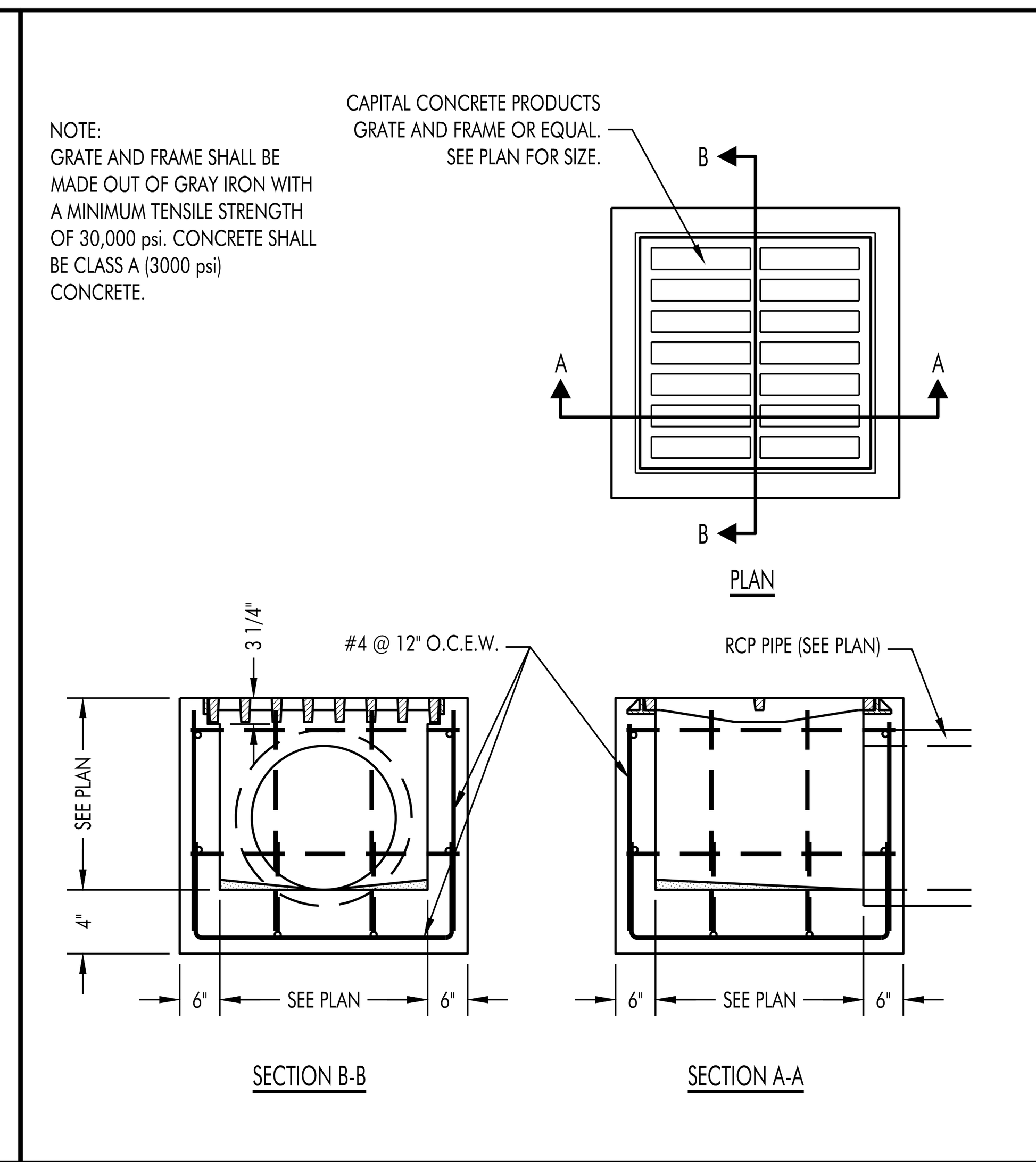

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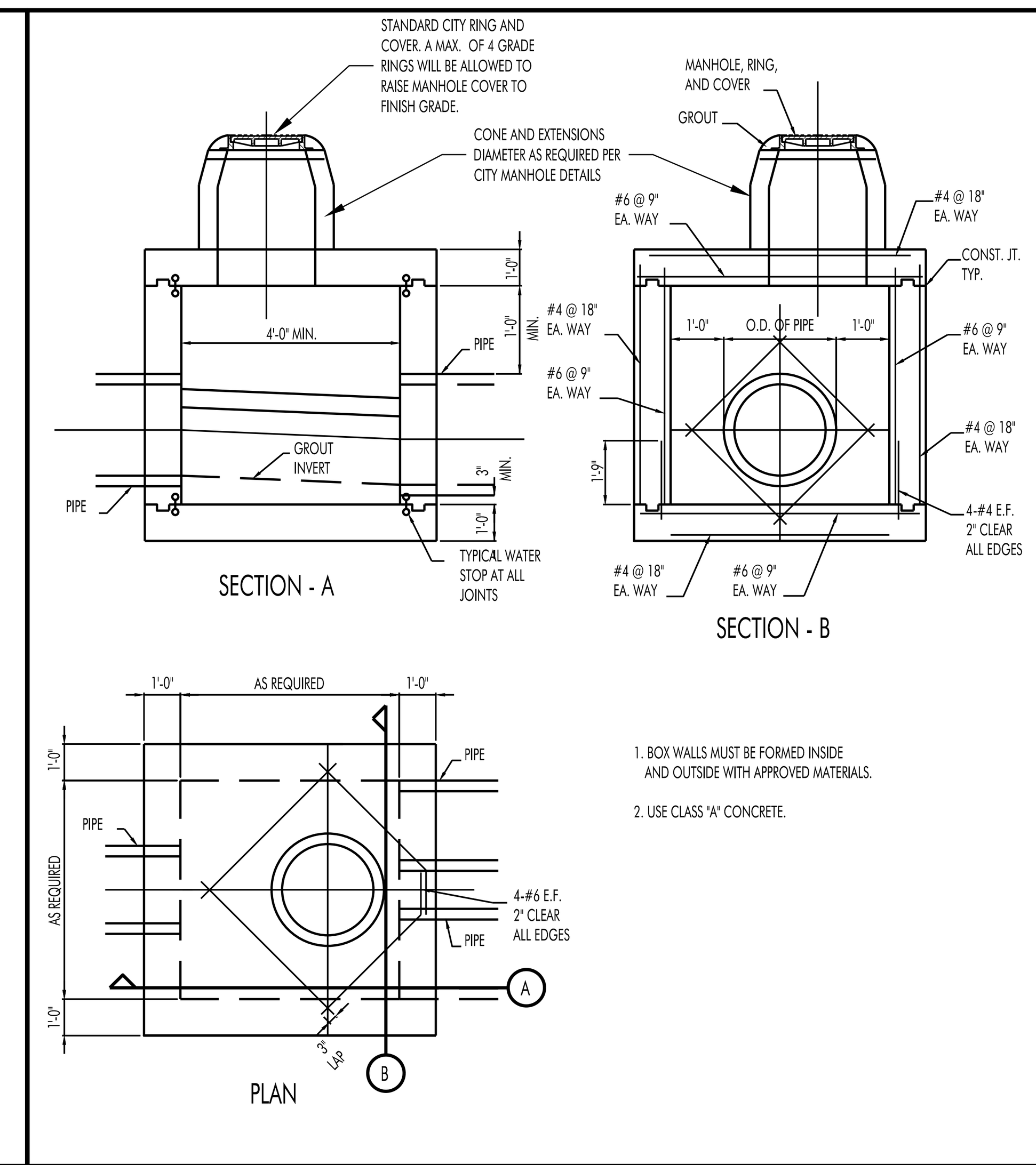
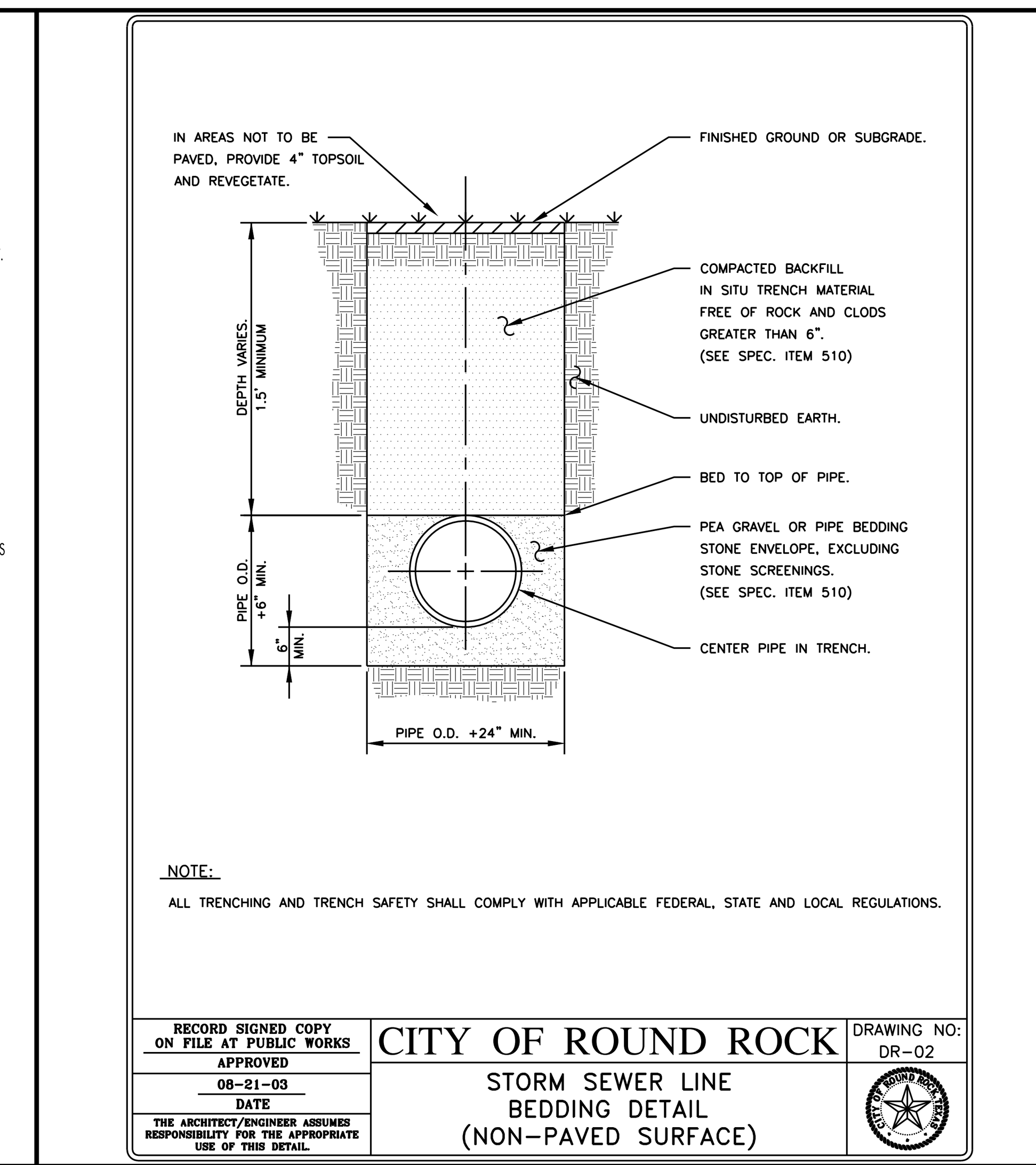
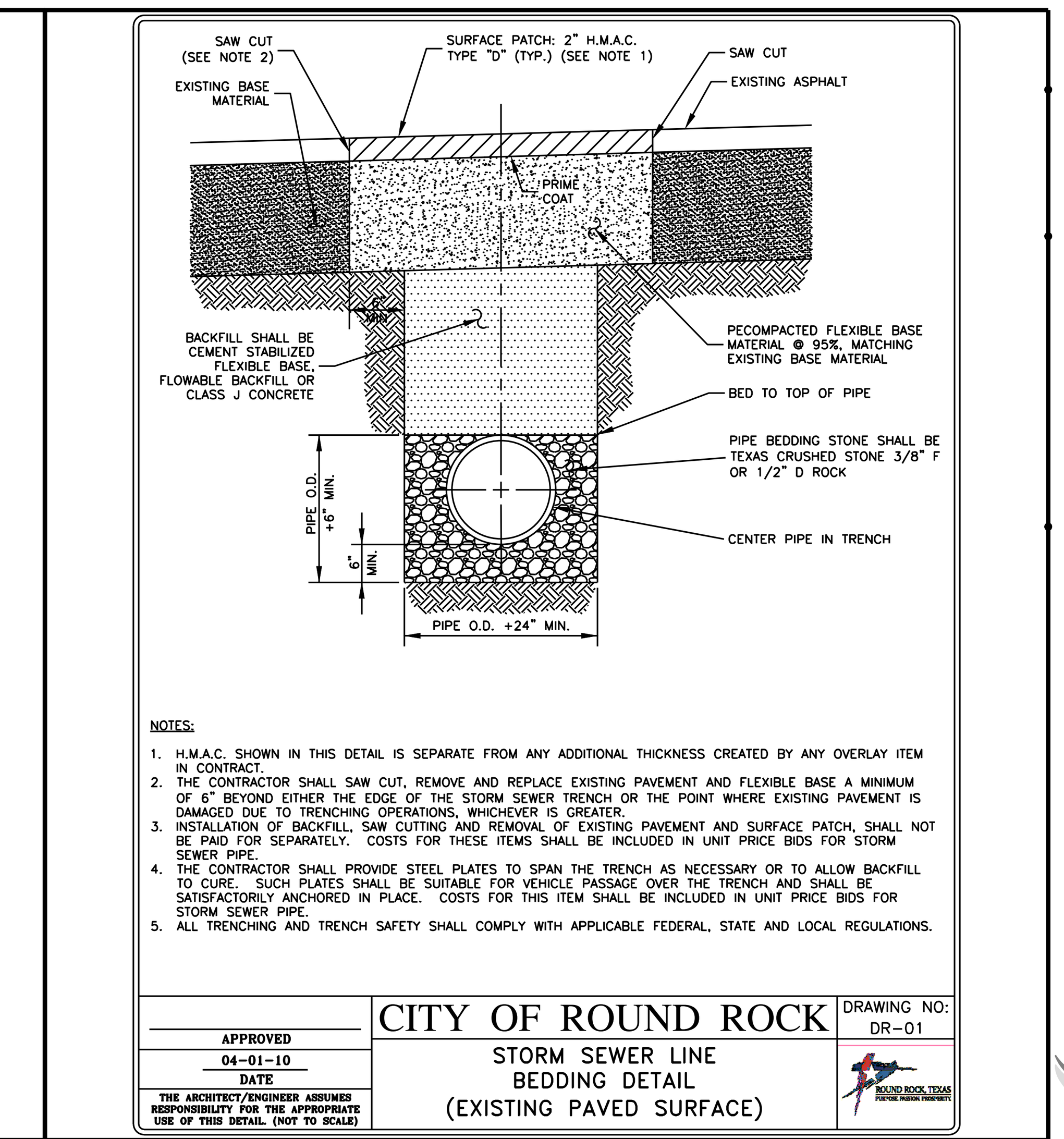


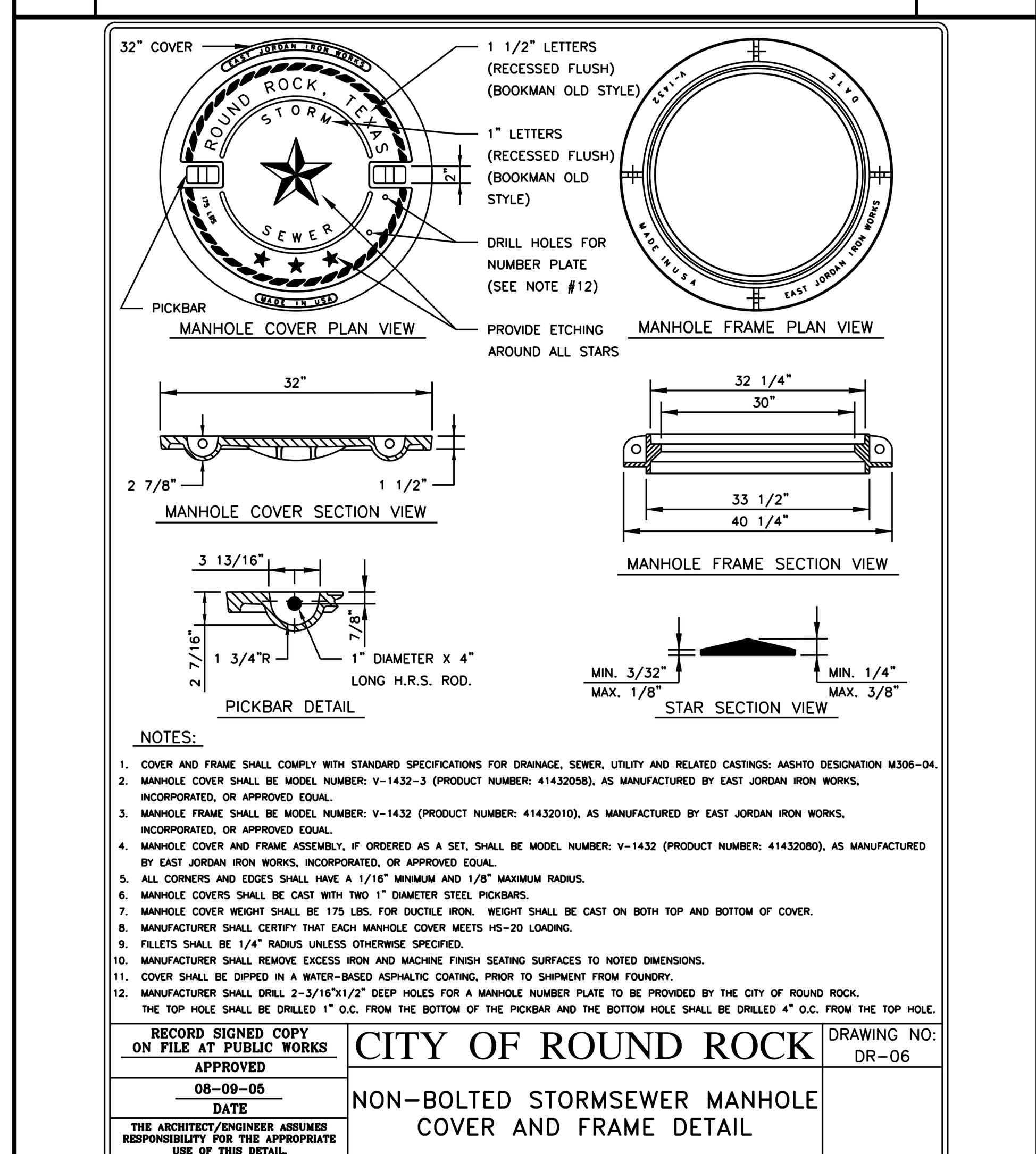
03 **JUNCTION BOX WITH CONE** NTS



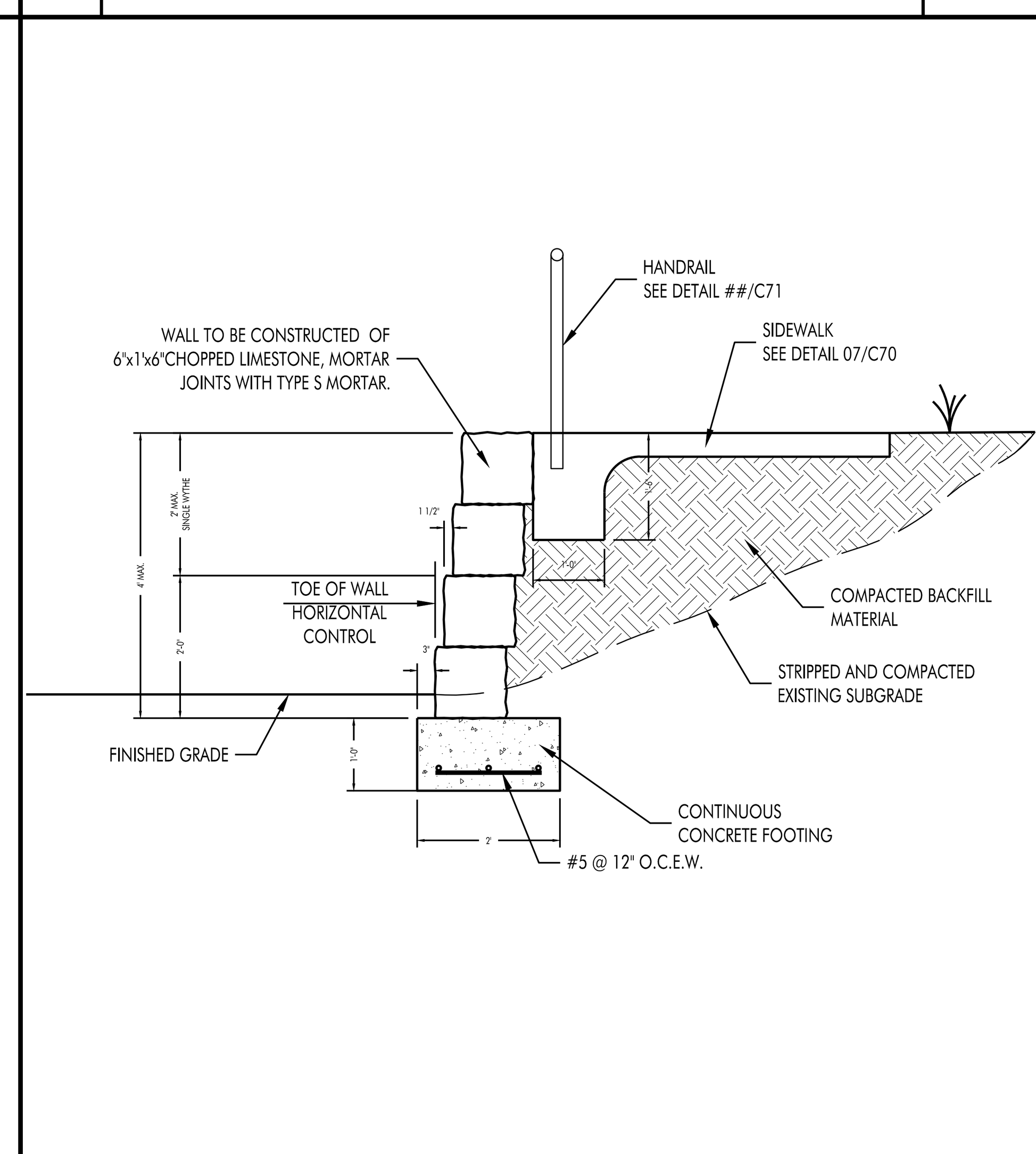
04 **STORM SEWER BEDDING (NON-PAVED)** NTS



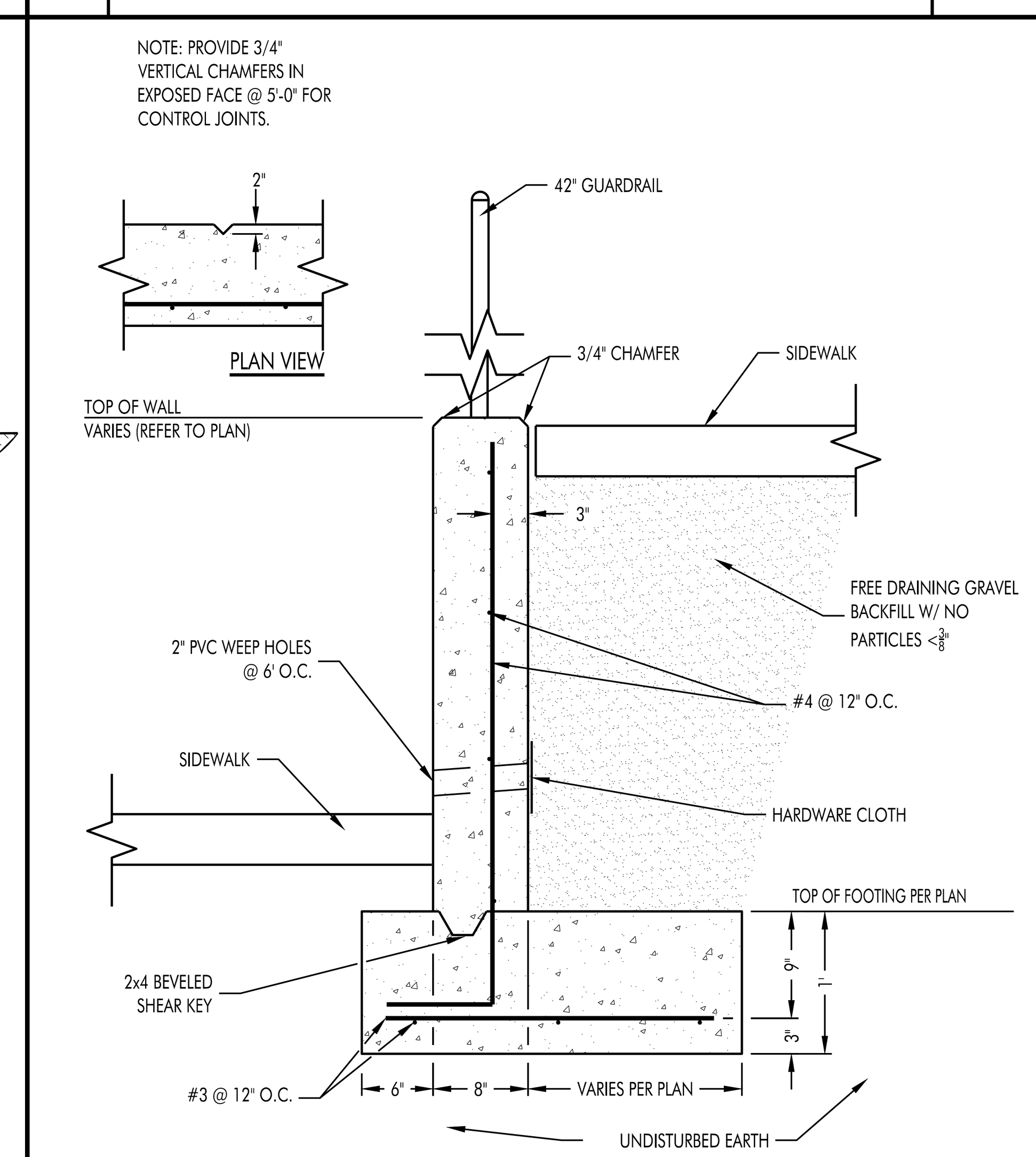
05 **STORM SEWER BEDDING (EXISTING PAVED)** NTS



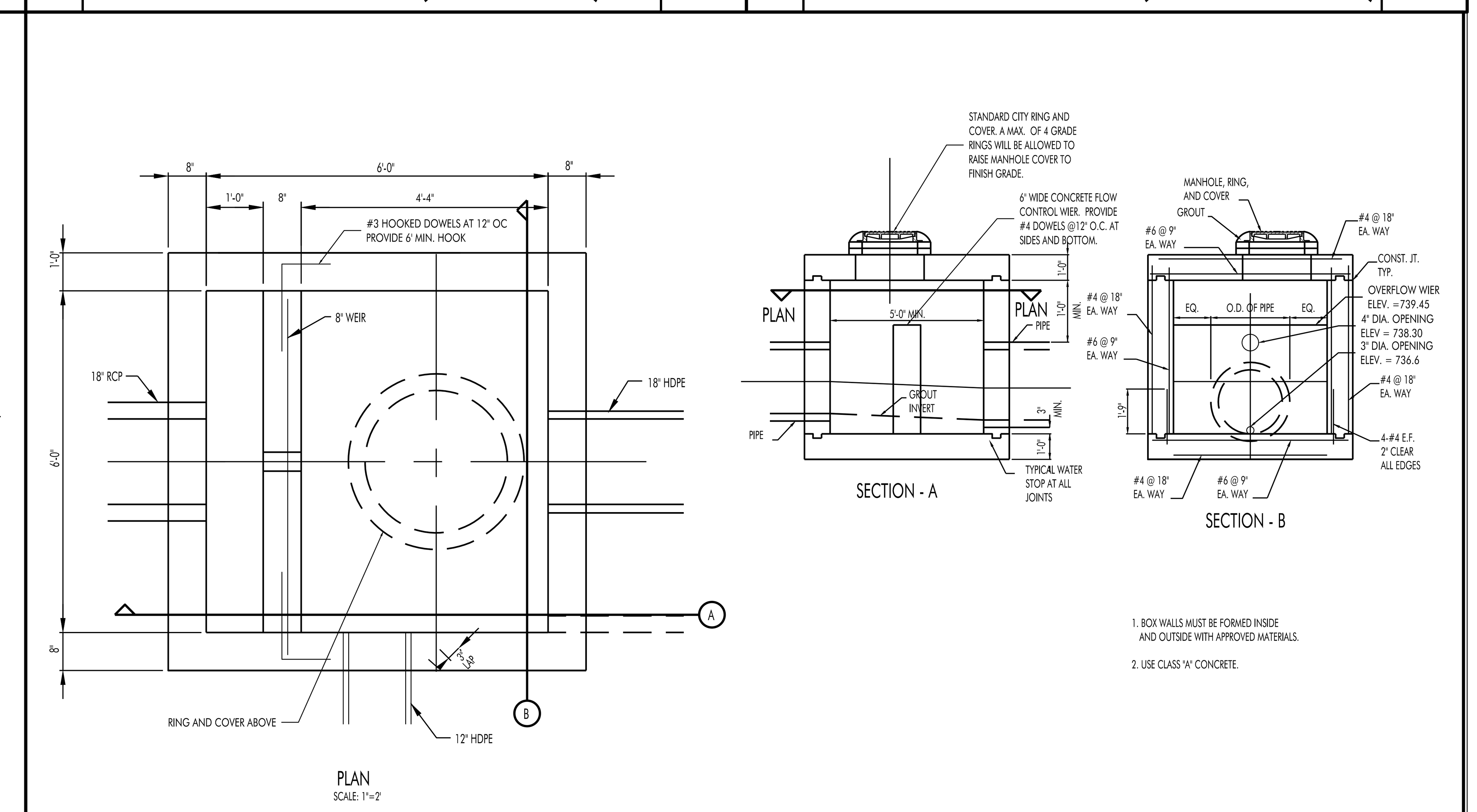
06 **NON-BOLTED STM COVER AND FRAME** NTS



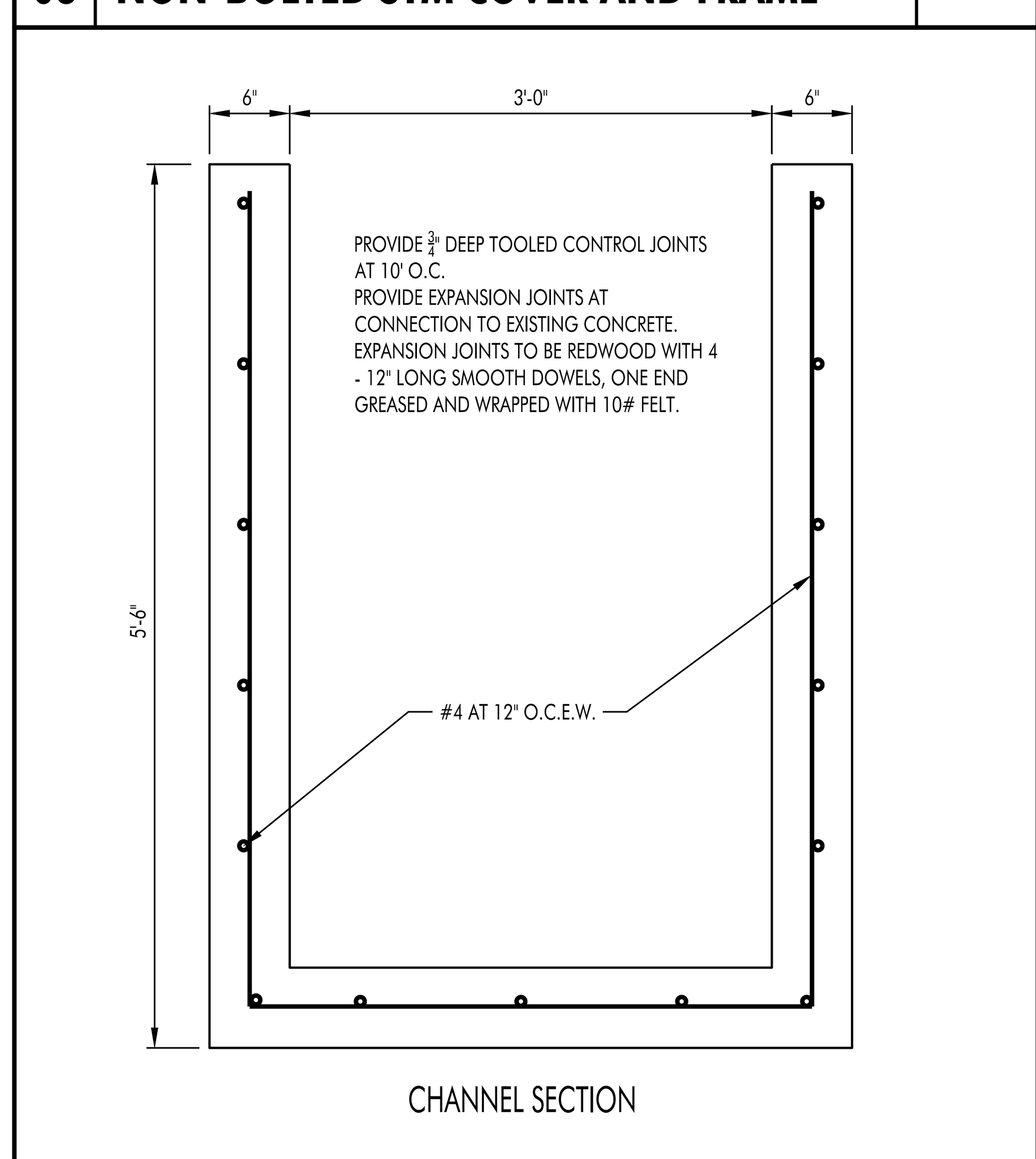
07 **LIMESTONE STACKED WALL WITH HANDRAIL** NTS



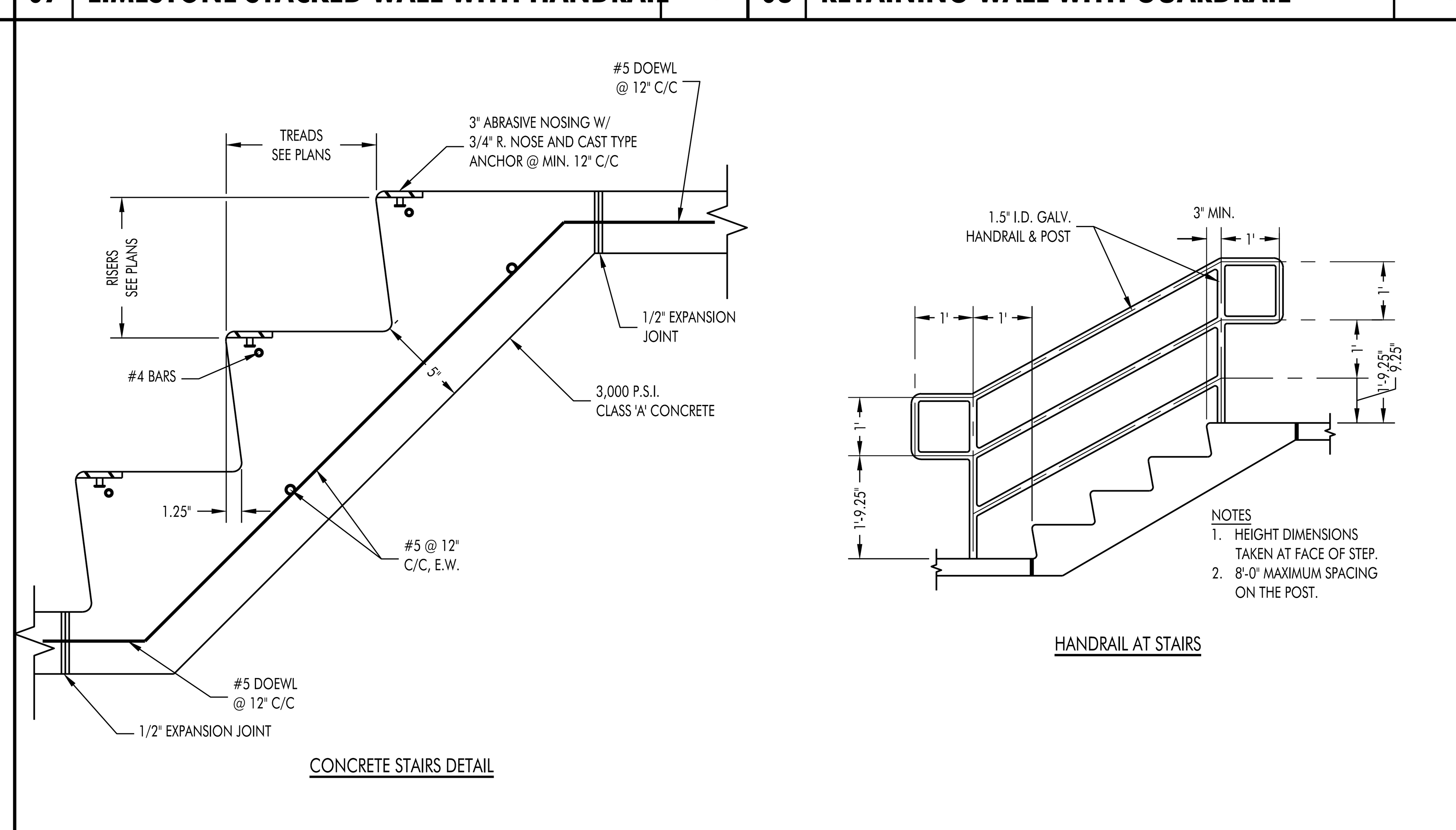
08 **RETAINING WALL WITH GUARDRAIL** NTS



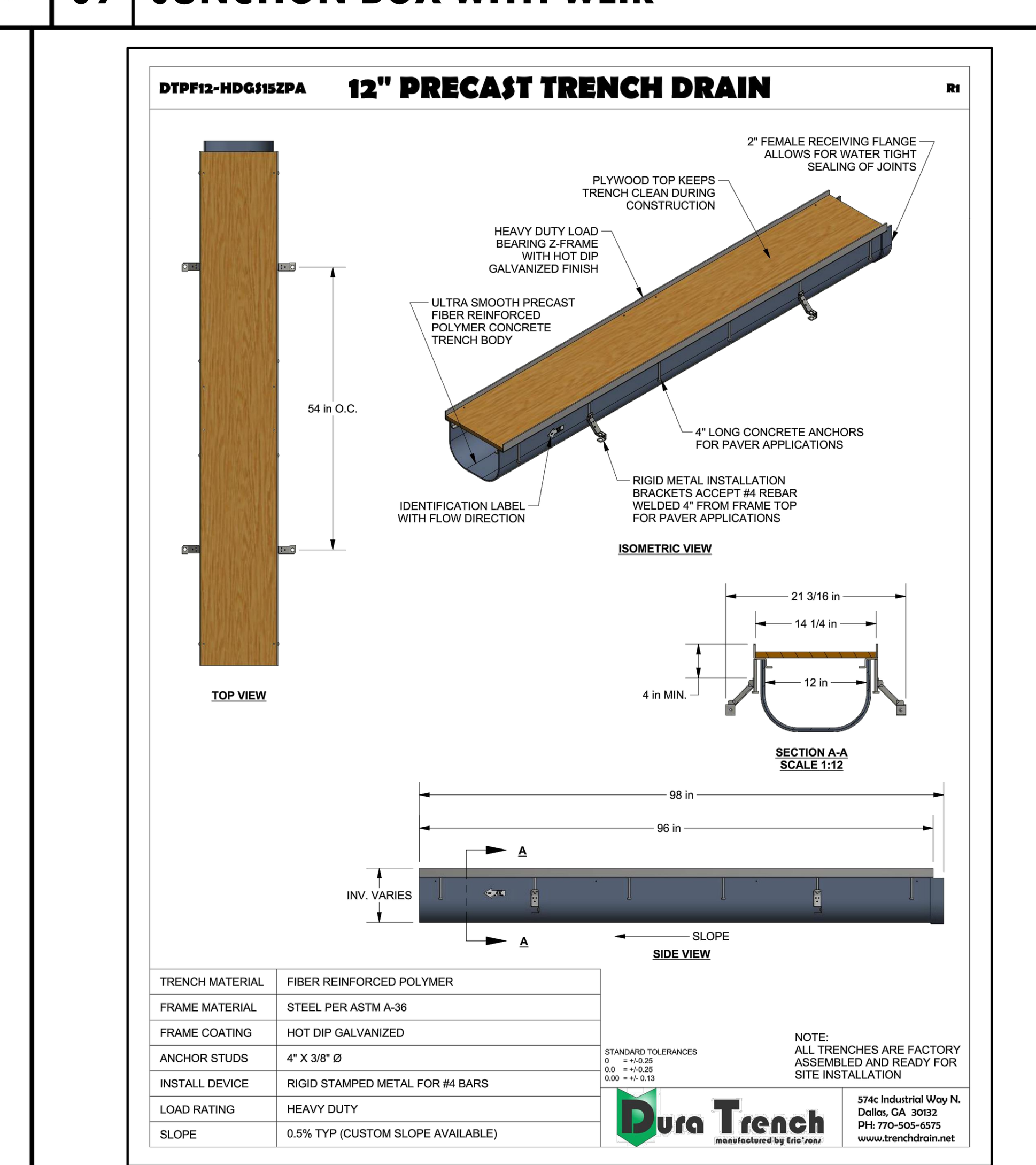
09 **JUNCTION BOX WITH WEIR** NTS



10 **CONCRETE TRICKLE CHANNEL** NTS



11 **CONCRETE STAIRS DETAIL** NTS



12 **PRECAST TRENCH DRAIN** NTS

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3	12.05.2022	CORR/TCEQ	
4	4.30.2023	TCEQ UPDATE	

Project Number: 22-019g
Drawn By: JSR
Checked By: RB

UTILITY DETAILS

C72

61

SDP2208-0002

13-018.2C72, 4/30/2023 1:48:23 PM, TerryH

Advanced Drainage Systems, Inc.

MC-3500 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-3500.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-3500 CHAMBER SYSTEM

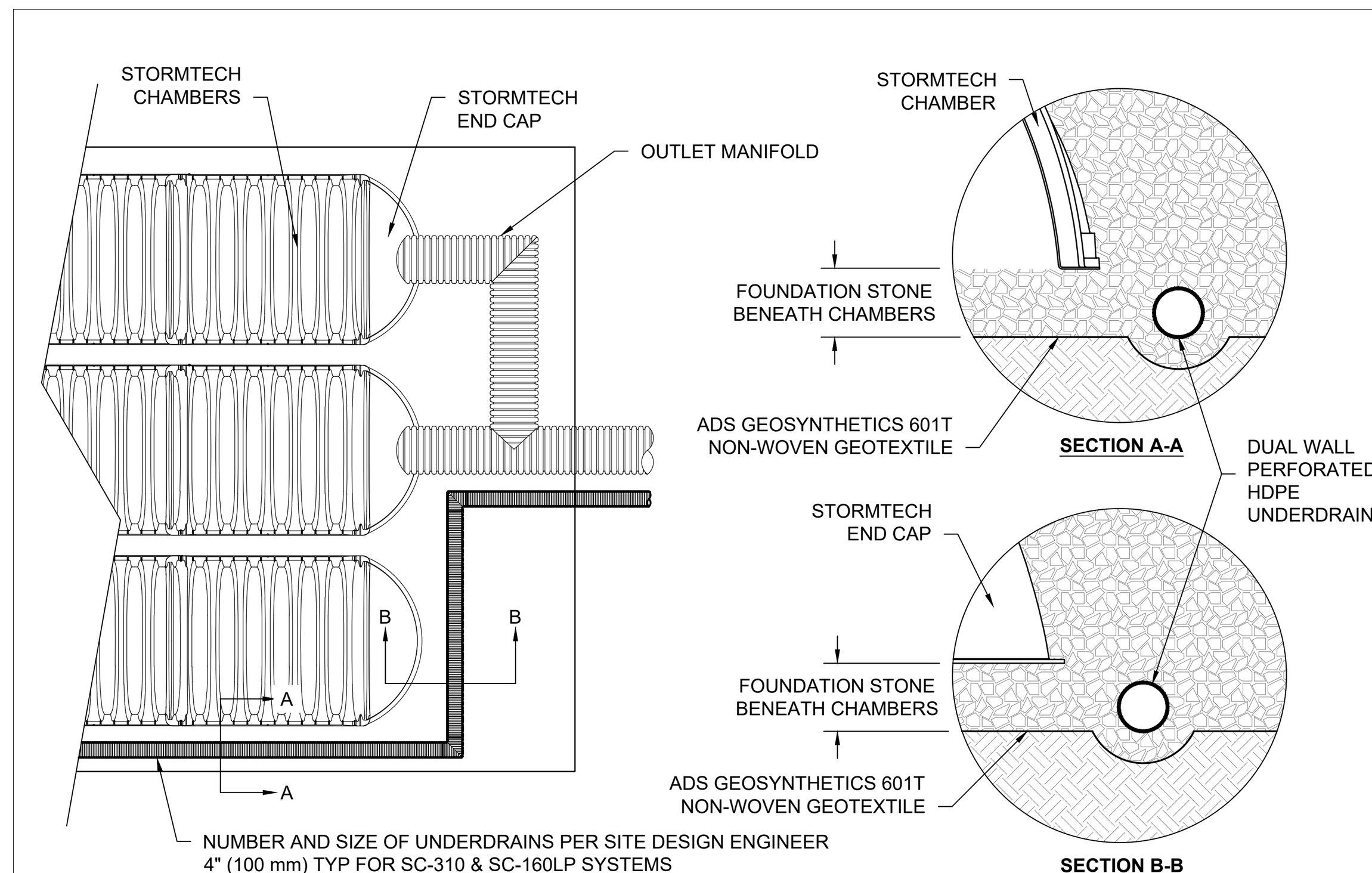
1. STORMTECH MC-3500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
9. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
10. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
11. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
2. THE USE OF EQUIPMENT OVER MC-3500 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

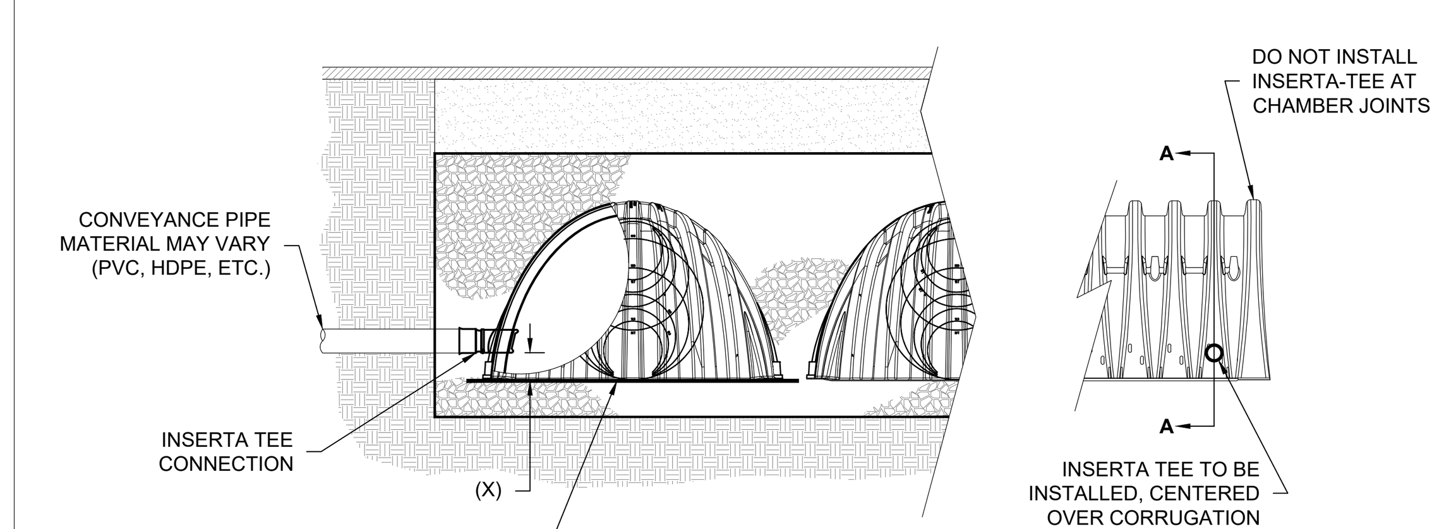
USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.



NUMBER AND SIZE OF UNDERDRAINS PER SITE DESIGN ENGINEER
4" (100 mm) TYP FOR SC-310 & SC-160LP SYSTEMS
6" (150 mm) TYP FOR SC-740, DC-780, MC-3500, MC-4500 & MC-7200 SYSTEMS

5 UNDERDRAIN DETAIL



PLACE ADSPLUS WOVEN GEOTEXTILE (CENTERED ON INSERTA-TEE INLET) OVER BEDDING STONE FOR SCOUR PROTECTION AT SIDE INLET CONNECTIONS. GEOTEXTILE MUST EXTEND 6" (150 mm) PAST CHAMBER FOOT

SECTION A-A

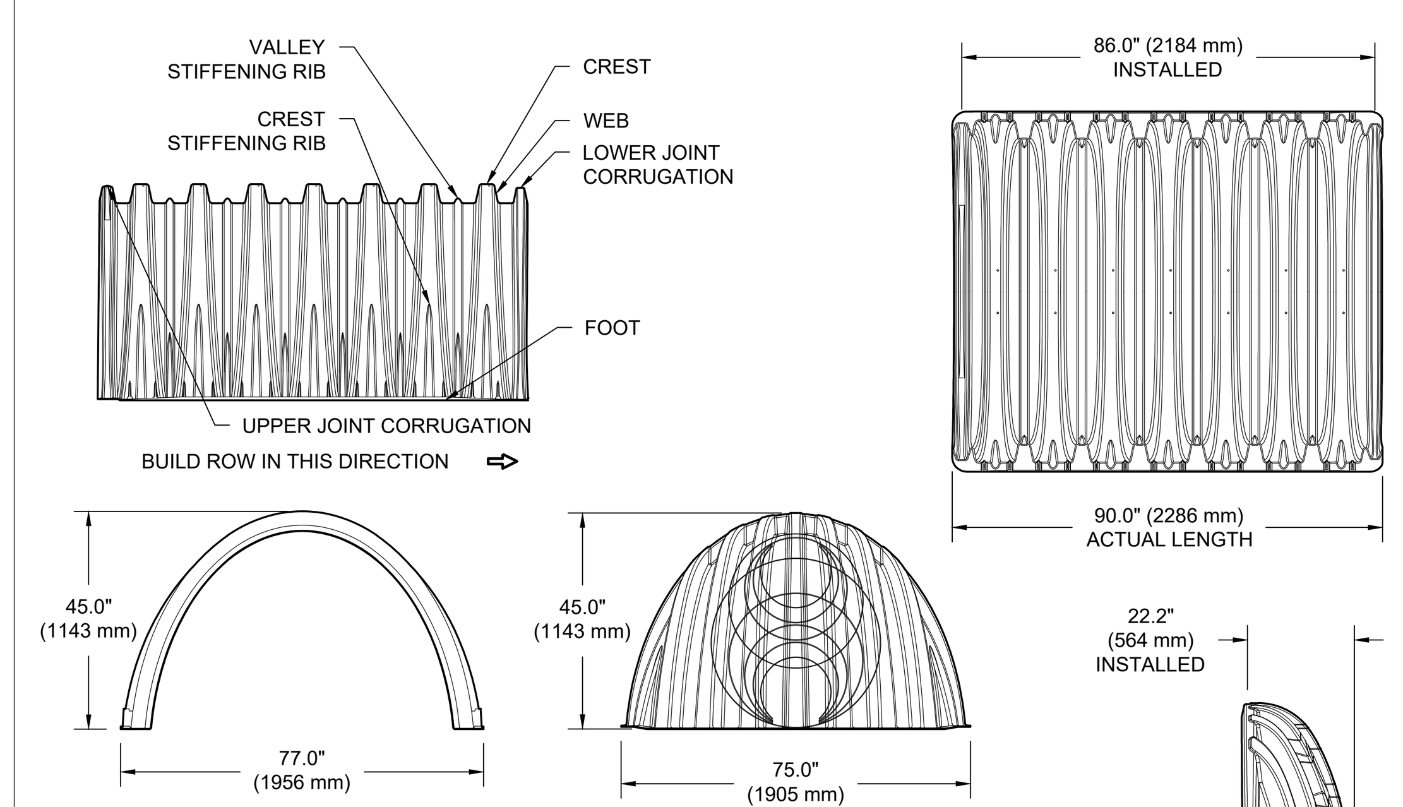
SIDE VIEW

NOTES:

- PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.
- CONTACT ADS ENGINEERING SERVICES IF INSERTA TEE INLET MUST BE RAISED AS NOT ALL INVERTS ARE POSSIBLE.

CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
SC-310	6" (150 mm)	4" (100 mm)
SC-740	10" (250 mm)	4" (100 mm)
DC-780	10" (250 mm)	4" (100 mm)
MC-3500	12" (300 mm)	6" (150 mm)
MC-4500	12" (300 mm)	8" (200 mm)
MC-7200	12" (300 mm)	8" (200 mm)
INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON		

6 INSERTA-TEE SIDE INLET DETAIL



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	77.0" X 45.0" X 86.0"	(1956 mm X 1143 mm X 2184 mm)
CHAMBER STORAGE	109.9 CUBIC FEET	($3.11 m^3$)
MINIMUM INSTALLED STORAGE*	175.0 CUBIC FEET	($4.96 m^3$)
WEIGHT	134 lbs.	(60.8 kg)

NOMINAL END CAP SPECIFICATIONS

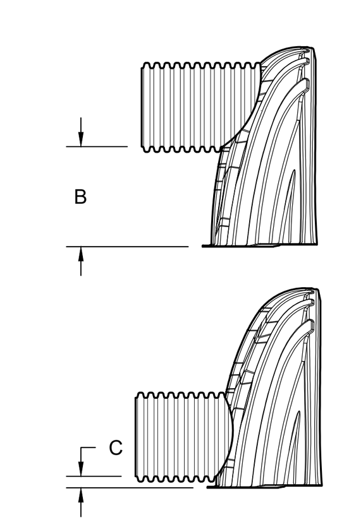
SIZE (W X H X INSTALLED LENGTH)	75.0" X 45.0" X 22.2"	(1905 mm X 1143 mm X 564 mm)
END CAP STORAGE	14.9 CUBIC FEET	($0.42 m^3$)
MINIMUM INSTALLED STORAGE*	45.1 CUBIC FEET	($1.28 m^3$)
WEIGHT	49 lbs.	(22.2 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION, 6" (152 mm) STONE BETWEEN CHAMBERS, 6" (152 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

PARTIAL CUT HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PARTIAL CUT HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"
END CAPS WITH A WELDED CROWN PLATE END WITH "C"

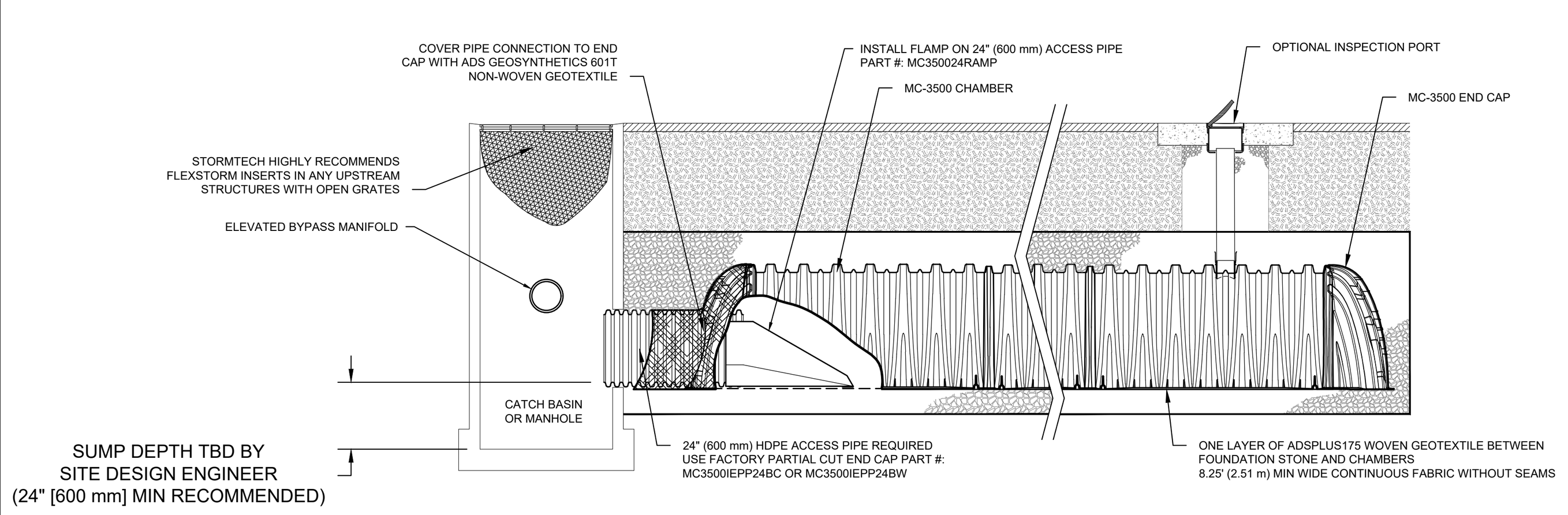
PART #	STUB	B	C
MC3500IEPP06T	6" (150 mm)	33.21" (844 mm)	---
MC3500IEPP06B		---	0.66" (17 mm)
MC3500IEPP08T	8" (200 mm)	31.16" (791 mm)	---
MC3500IEPP08B		---	0.81" (21 mm)
MC3500IEPP10T	10" (250 mm)	29.04" (738 mm)	---
MC3500IEPP10B		---	0.93" (24 mm)
MC3500IEPP12T	12" (300 mm)	26.36" (670 mm)	---
MC3500IEPP12B		---	1.35" (34 mm)
MC3500IEPP15T	15" (375 mm)	23.39" (594 mm)	---
MC3500IEPP15B		---	1.50" (38 mm)
MC3500IEPP18TC	18" (450 mm)	20.03" (509 mm)	---
MC3500IEPP18TW			
MC3500IEPP18BC		---	1.77" (45 mm)
MC3500IEPP18BW			
MC3500IEPP24TC	24" (600 mm)	14.48" (368 mm)	---
MC3500IEPP24TW			
MC3500IEPP24BC		---	2.06" (52 mm)
MC3500IEPP24BW			
MC3500IEPP30BC	30" (750 mm)	---	2.75" (70 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL



CUSTOM PARTIAL CUT INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-3500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

2 MC-3500 TECHNICAL SPECIFICATIONS



SUMP DEPTH TBD BY SITE DESIGN ENGINEER (24" [600 mm] MIN RECOMMENDED)

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

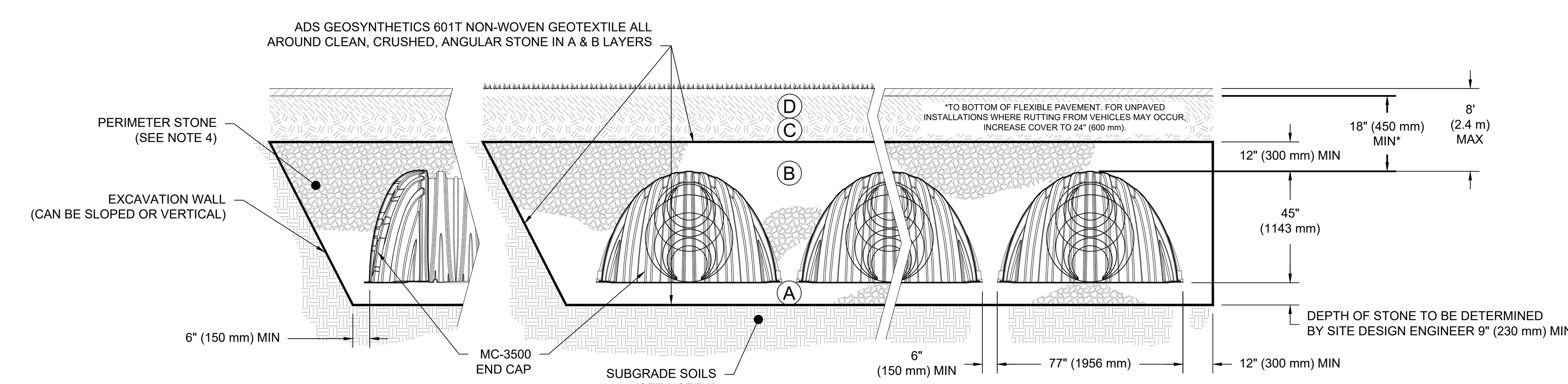
1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

3 MC-3500 ISOLATOR ROW PLUS DETAIL

ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTES:

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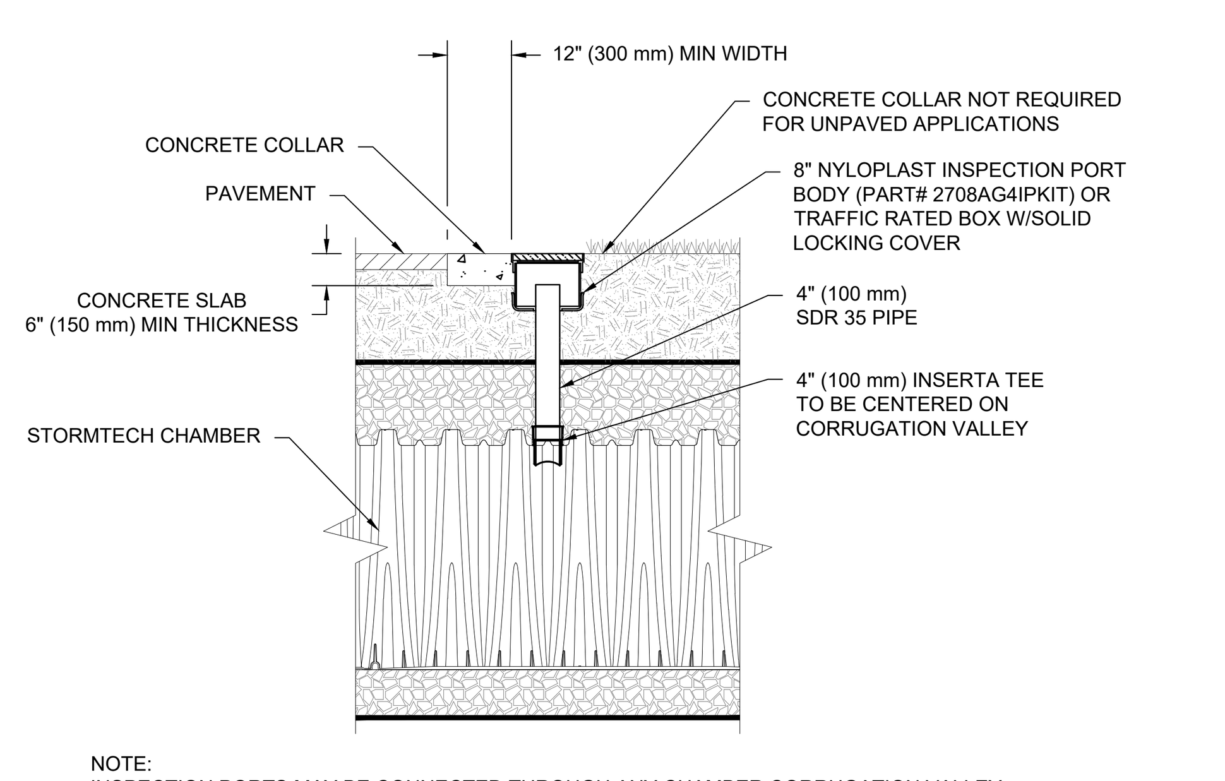
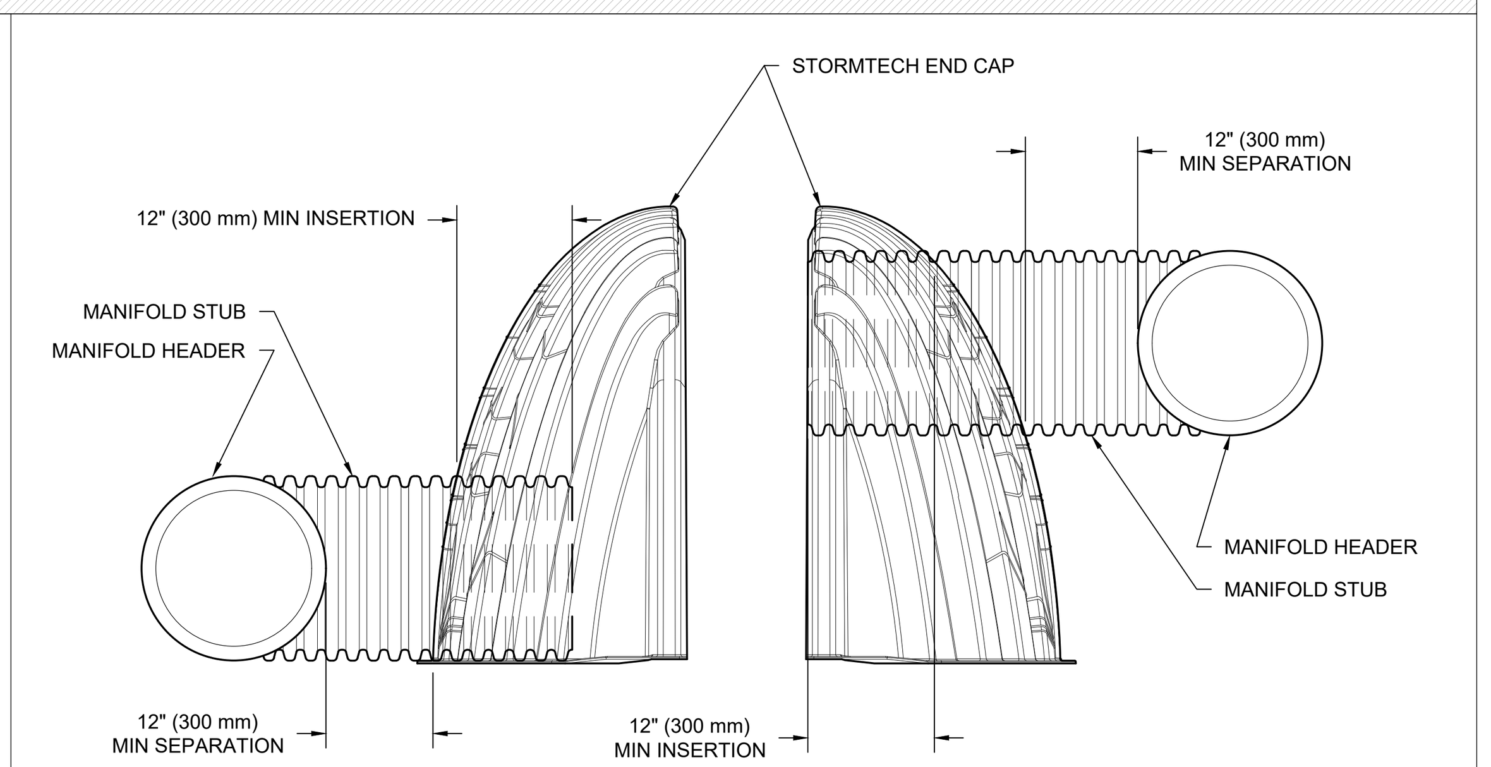
2. MC-3500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/FT/%. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

1 MC-3500 CROSS SECTION DETAIL



NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION VALLEY.

4 4" PVC INSPECTION PORT DETAIL (MC SERIES CHAMBER)



NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

7 MC-SERIES END CAP INSERTION DETAIL

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Seal:

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11.04.2022

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DATE SIGNED: 4/30/2023
ISSUED FOR: AGENCY REVIEW

J:\2013\13-076a Burke CC lot J\11.0 Drawings\burke logo.jpg

. Eagles Nest 3 Lot KE - Bldgs. 6-9

3259 Eagles Nest St.
Round Rock, Texas,
78665

Issue

1	09.23.2022	50% CD - Pricing
2	11.04.2022	95% CD
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DETENTION DETAILS

C73

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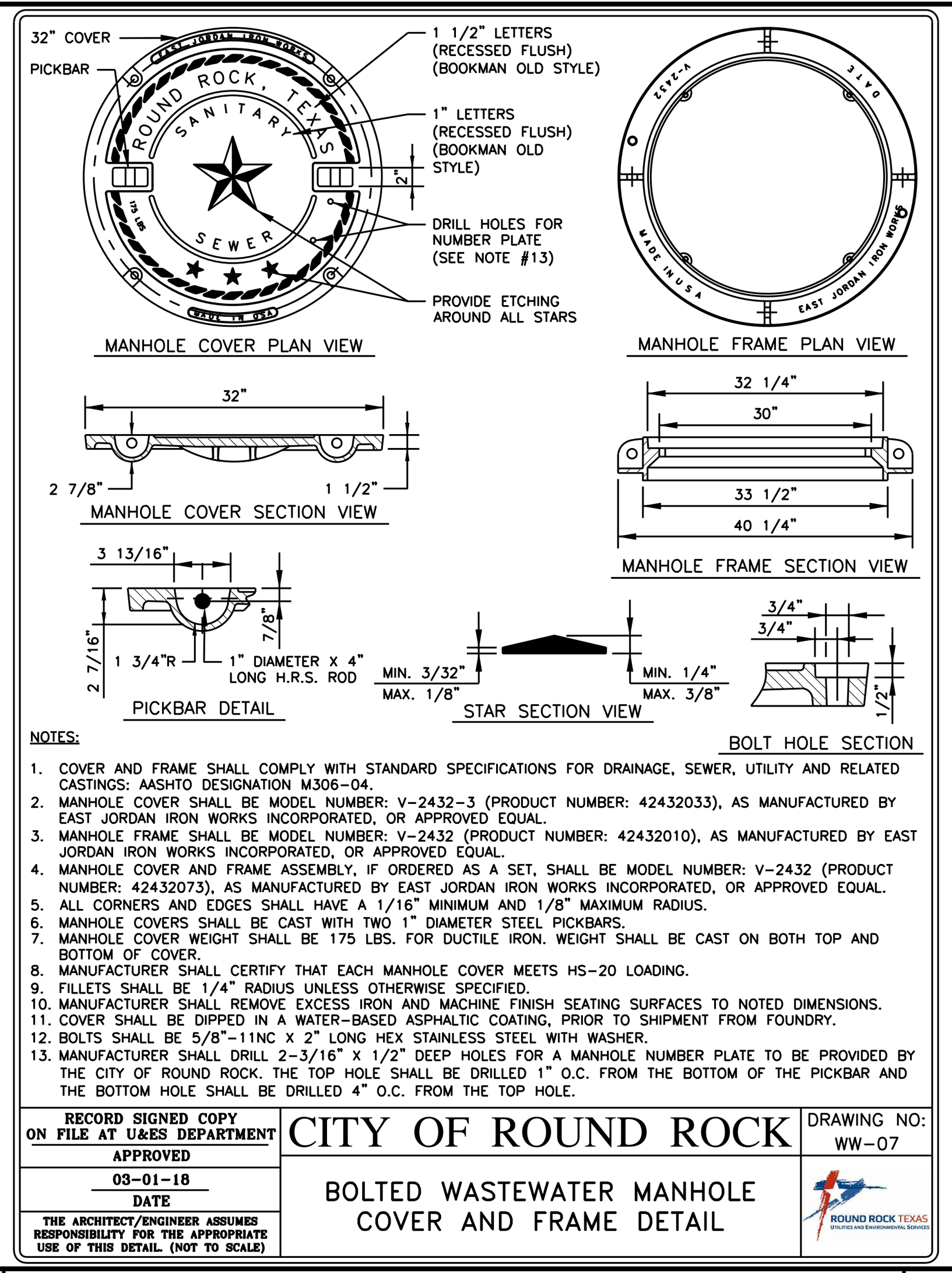
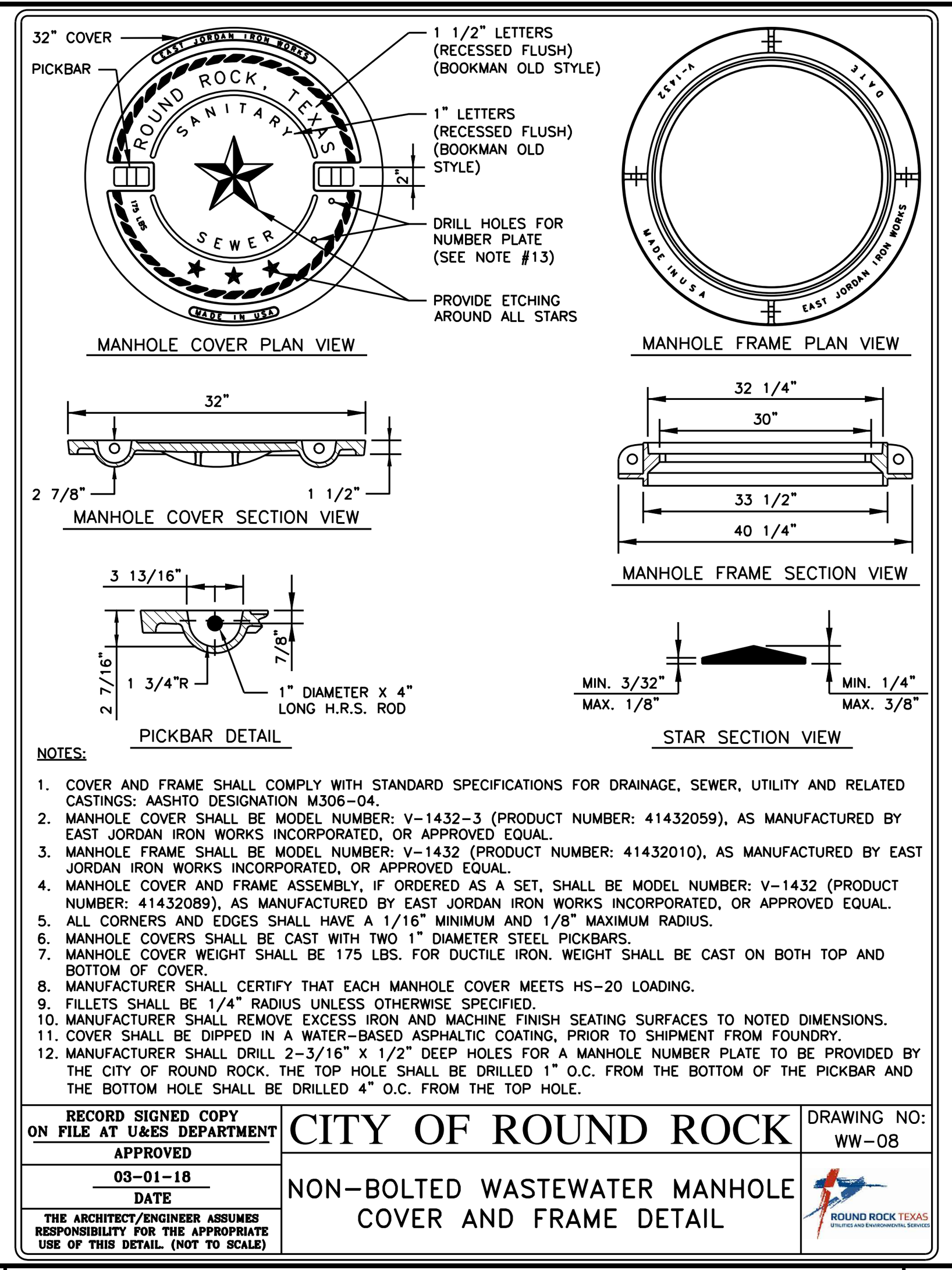
SDP2208-0002

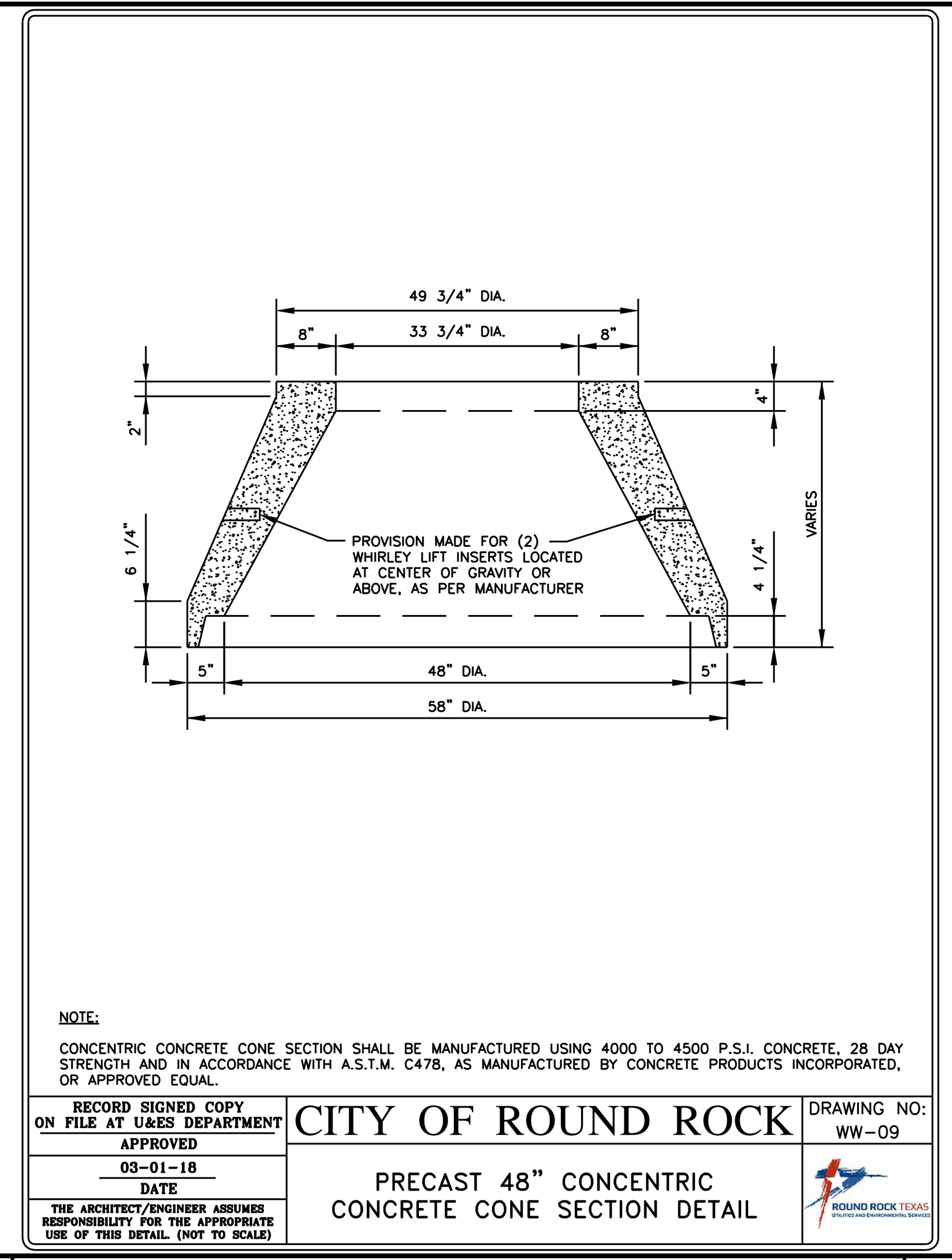
13-018.2\DETENTION DETAILS, 4/30/2023 1:48:35 PM, TerryH



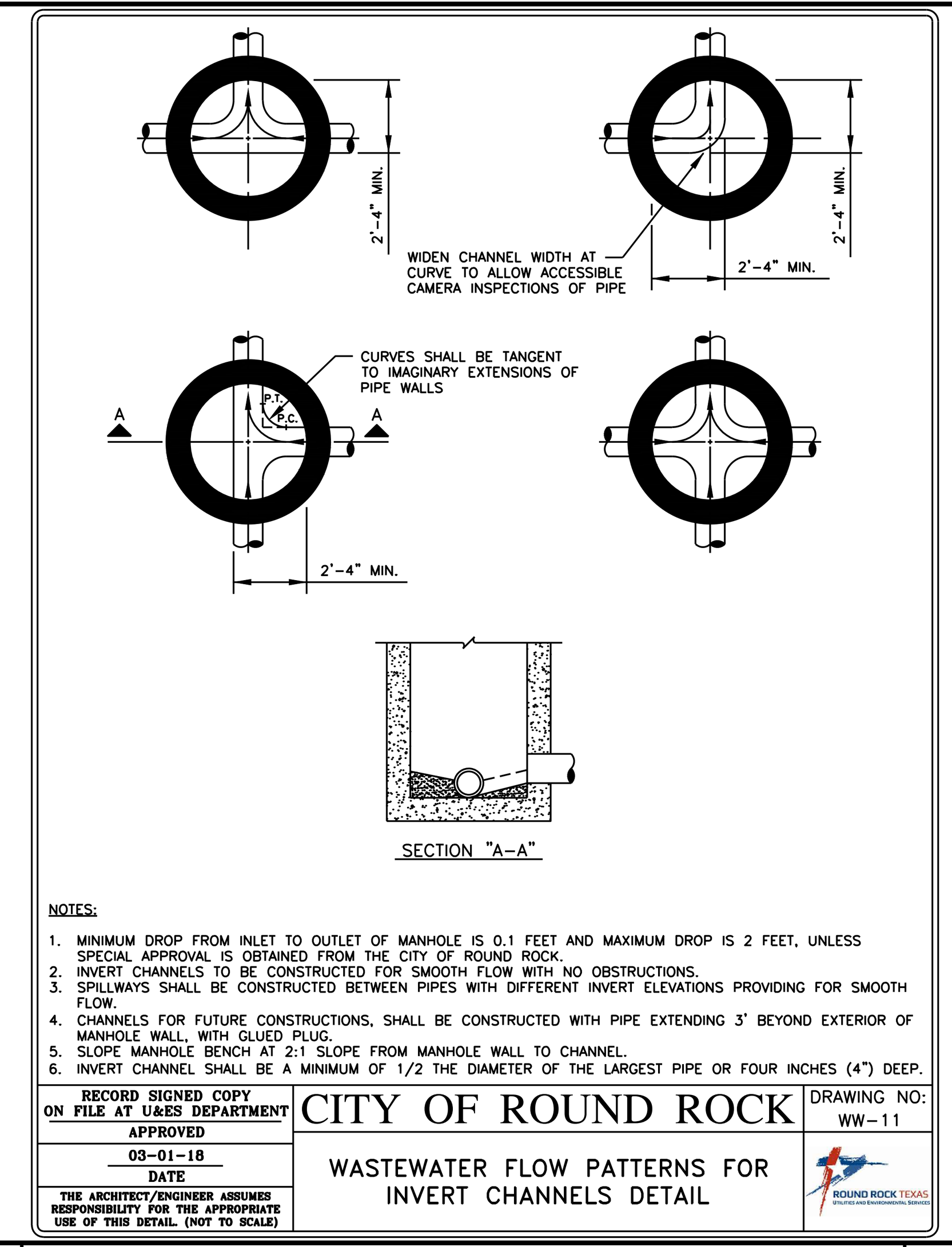
01 **BOLTED MANHOLE COVER AND FRAME** NTS



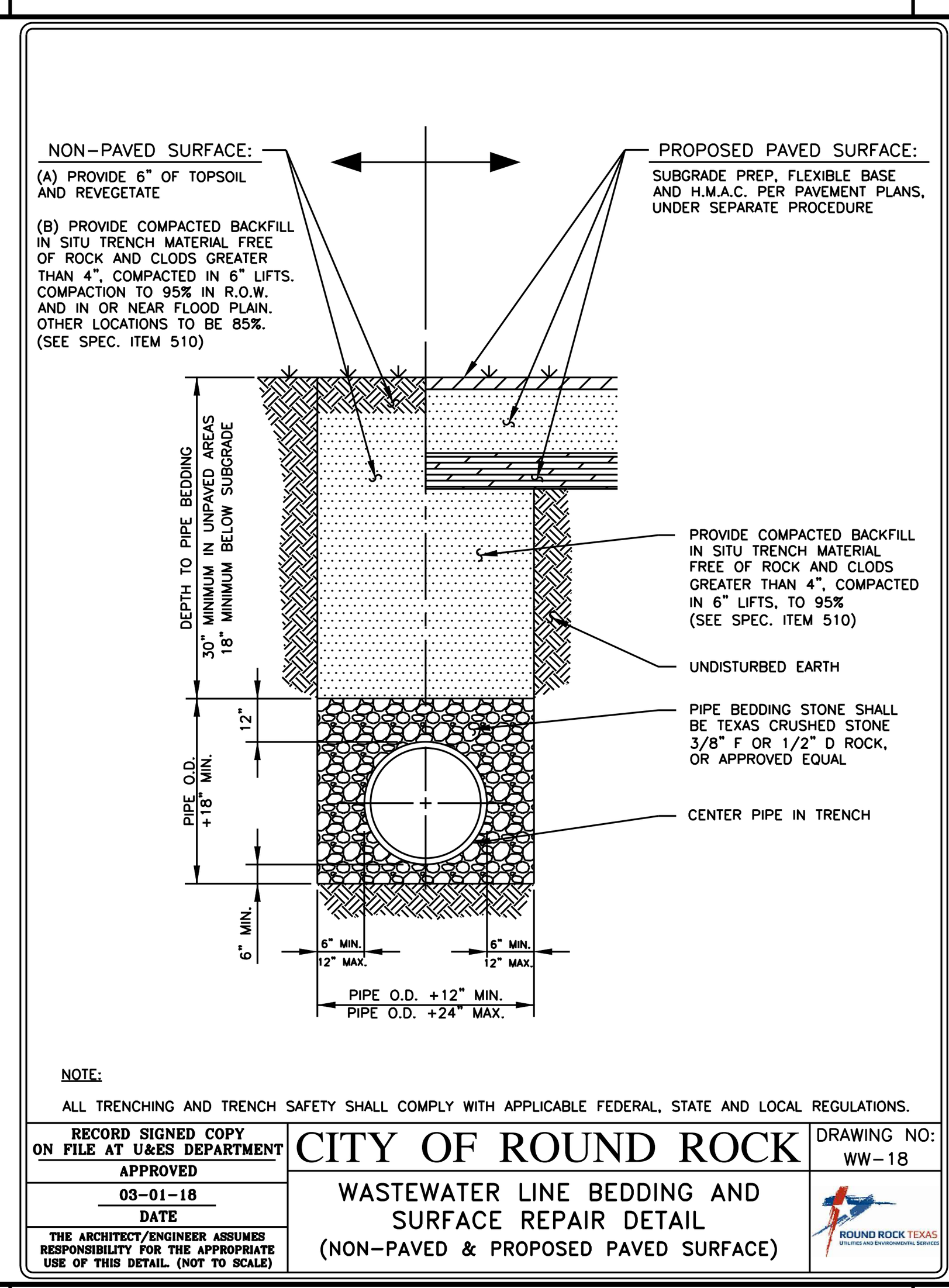
02 **NON-BOLTED MANHOLE COVER AND FRAME** NTS



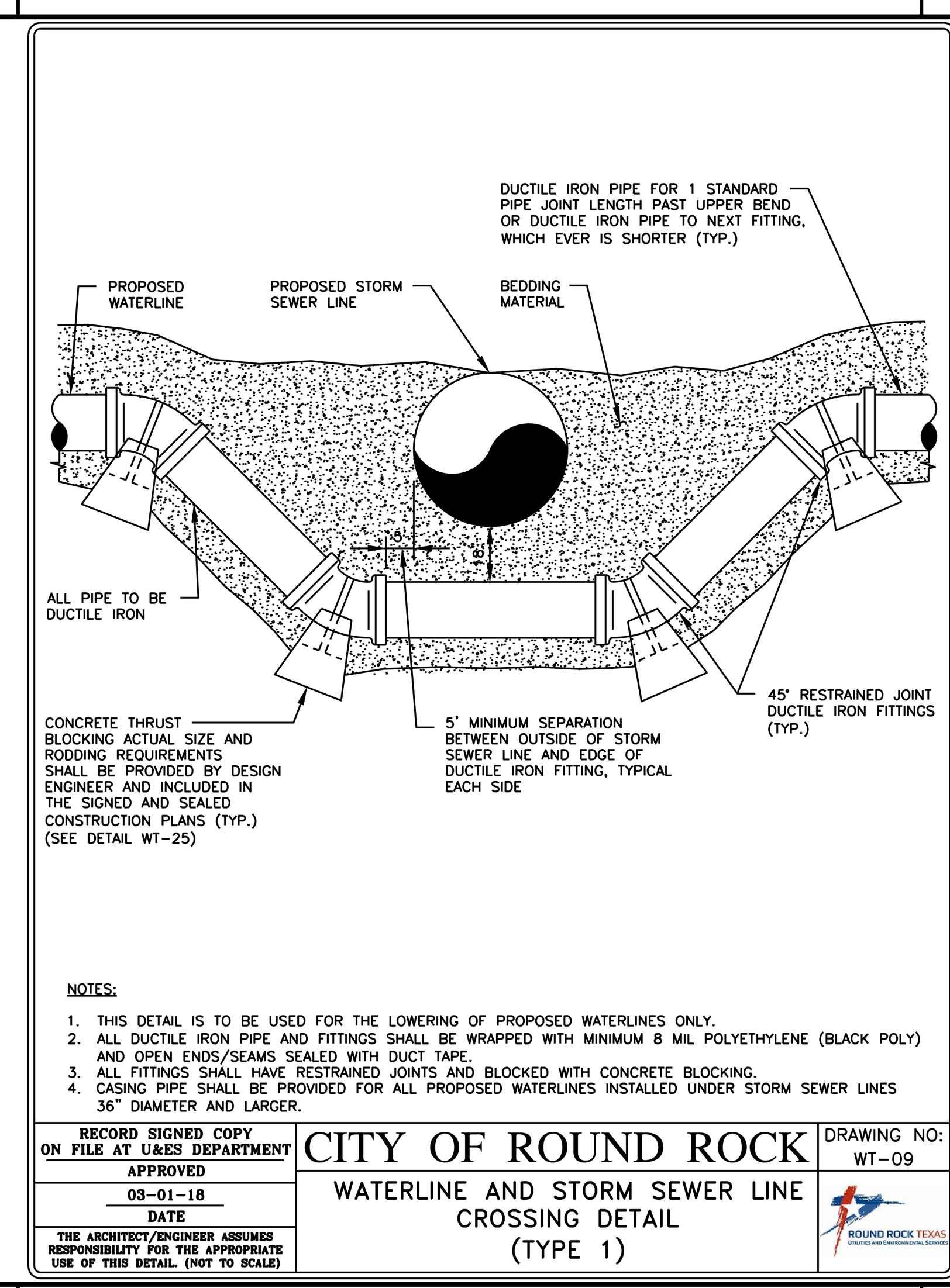
03 **PRECAST 48 CONCENTRIC CONE** NTS



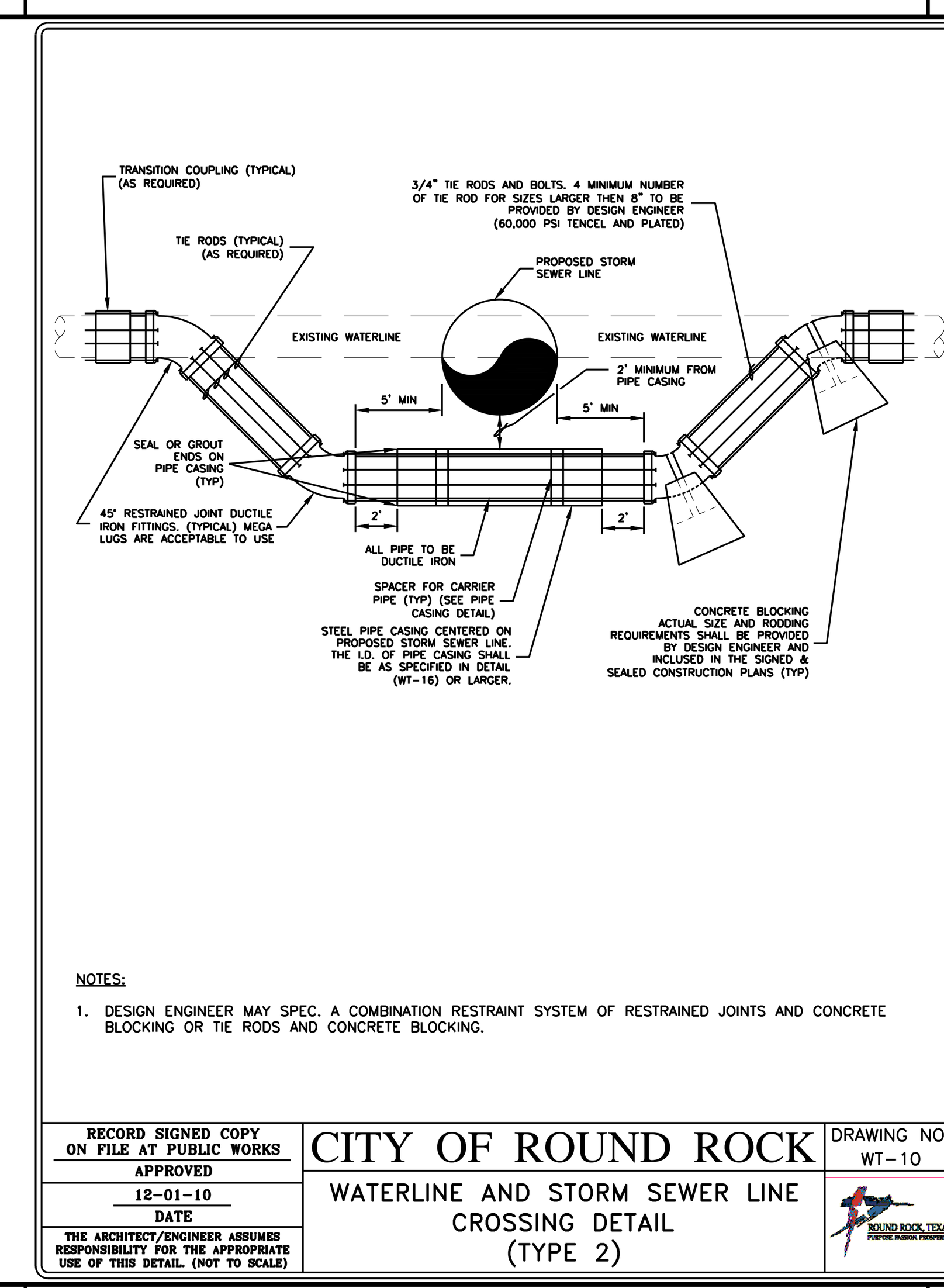
04 **WASTEWATER_FLOW_PATTERNS** NTS



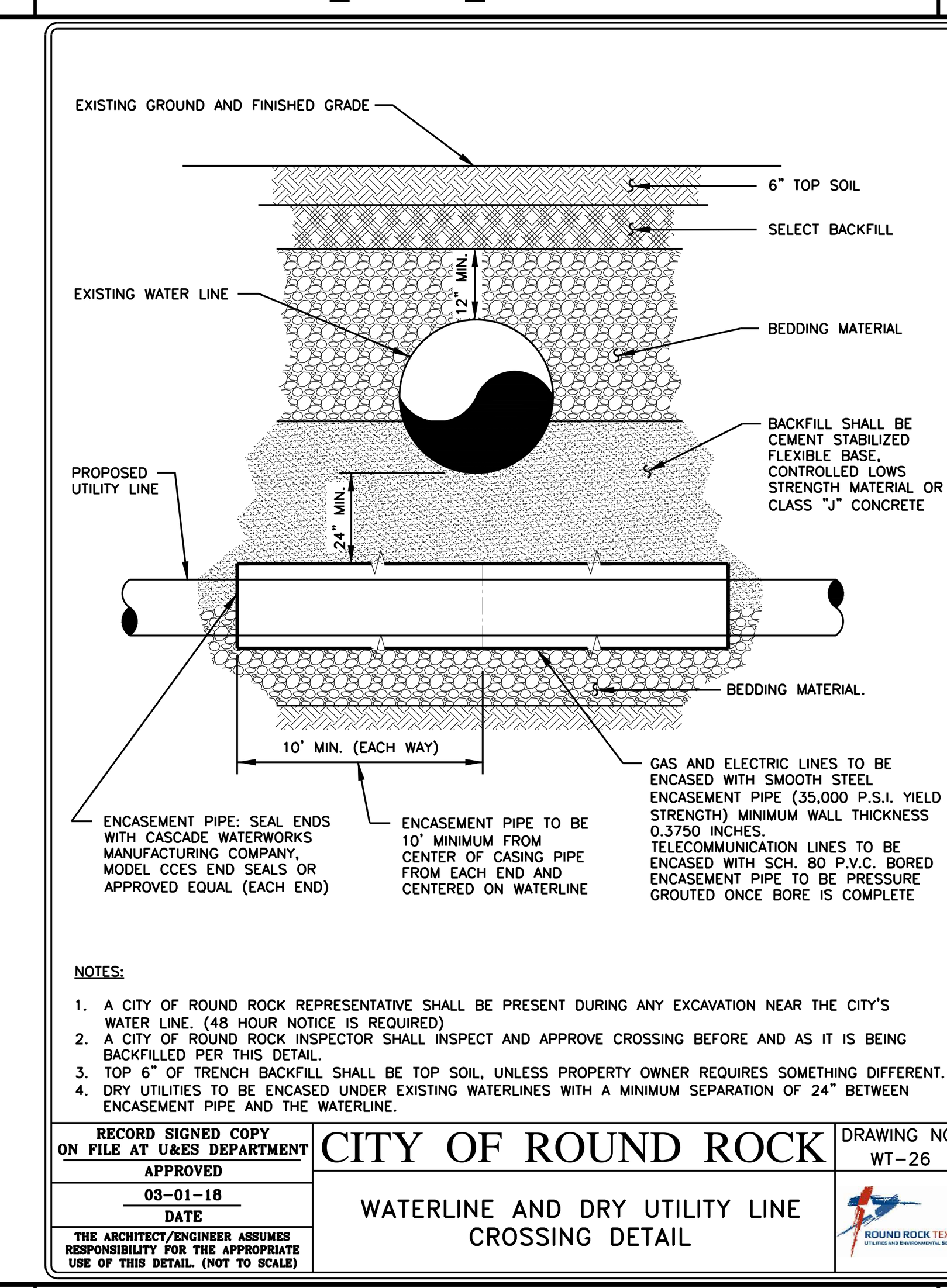
05 **WASTEWATER_LINE_BEDDING** NTS



06 **WATERLINE AND STORM CROSSING TYPE 1** NTS

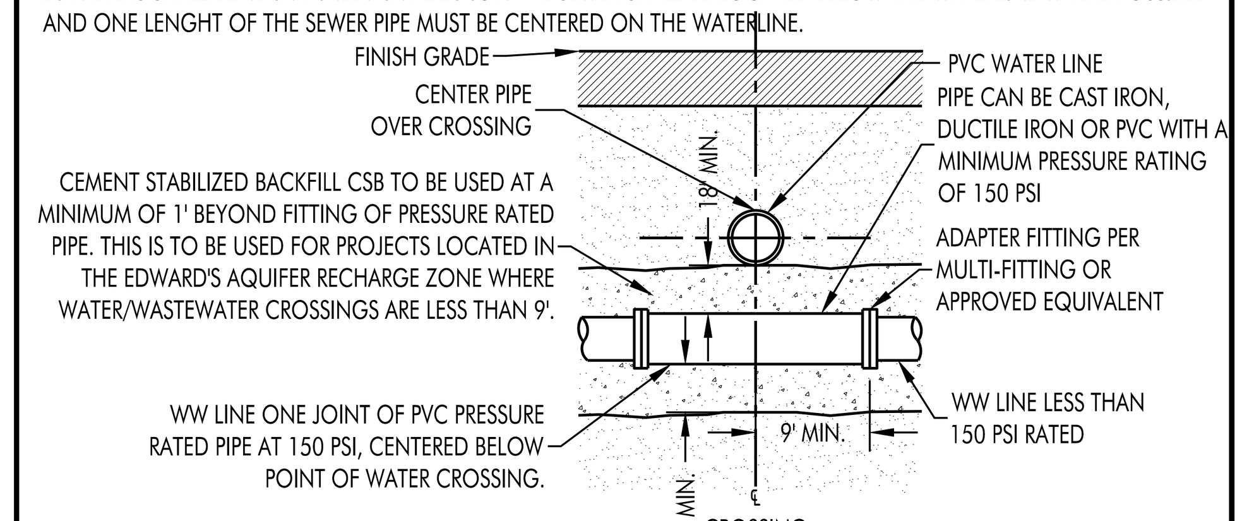


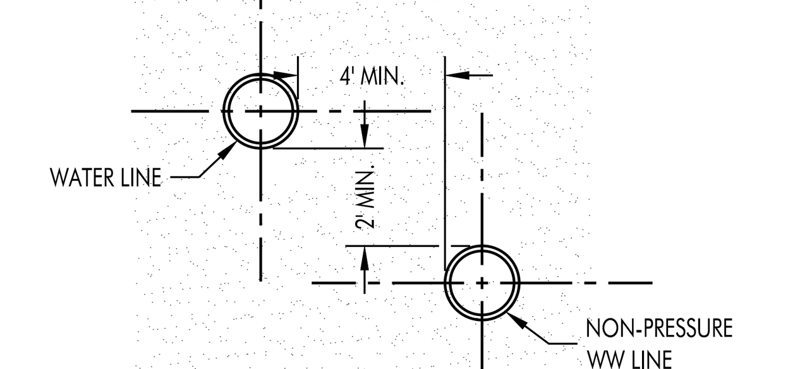
07 **WATER AND STORM CROSSING TYPE 2** NTS



08 **WATER LINE AND GAS LINE CROSSING** NTS

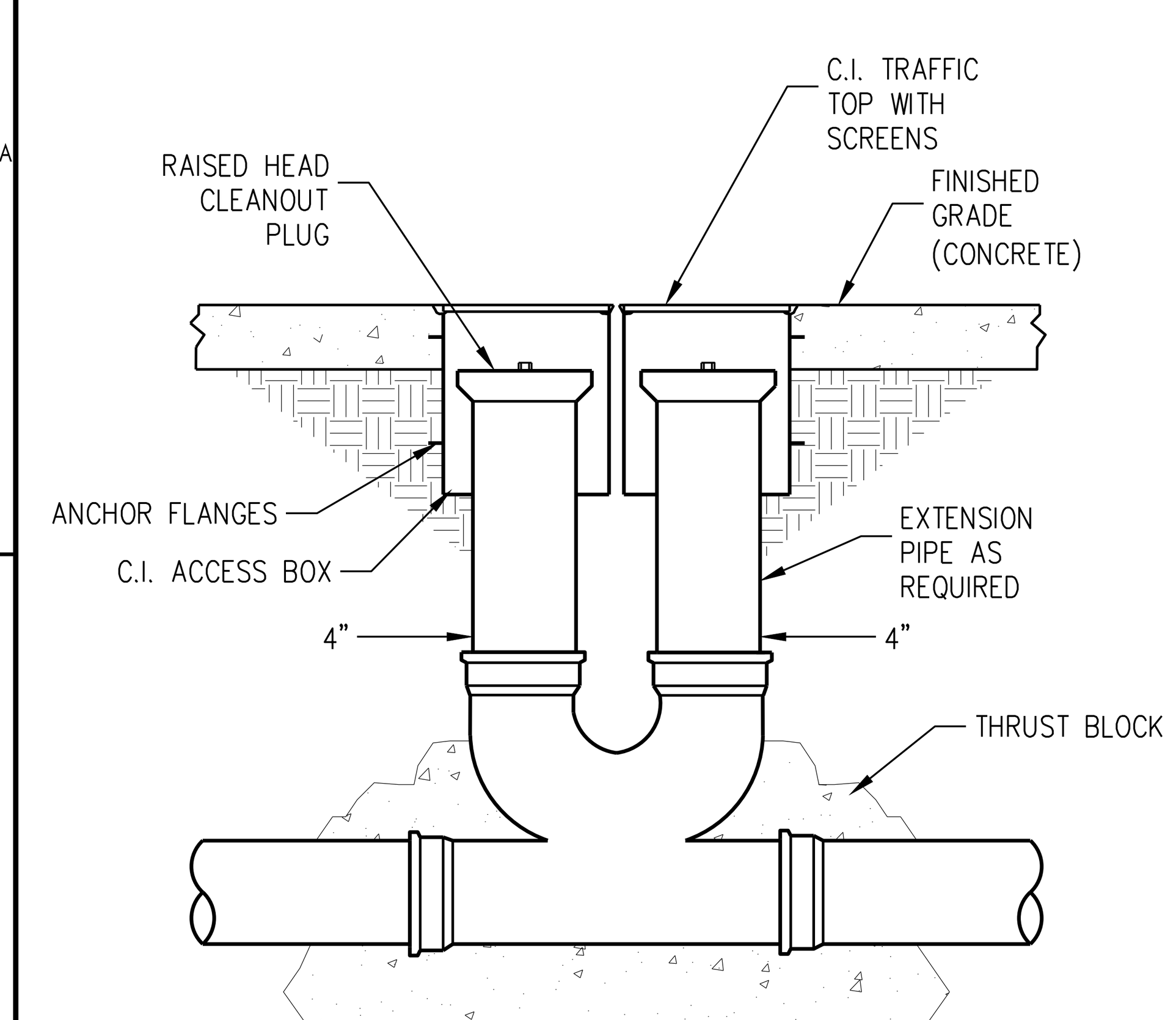
NOTE:
WHERE A SANITARY SEWER CROSSES A WATERLINE AND THE SEWER IS CONSTRUCTED OF CAST IRON, DUCTILE IRON OR PVC WITH A MINIMUM PRESSURE RATING OF 150 PSI, AN ABSOLUTE MINIMUM DISTANCE OF 6 INCHES BETWEEN OUTSIDE DIAMETERS SHALL BE MAINTAINED. IN ADDITION THE SEWER SHALL BE LOCATED BELOW THE WATERLINE WHERE POSSIBLE AND ONE LENGHT OF THE SEWER PIPE MUST BE CENTERED ON THE WATERLINE.



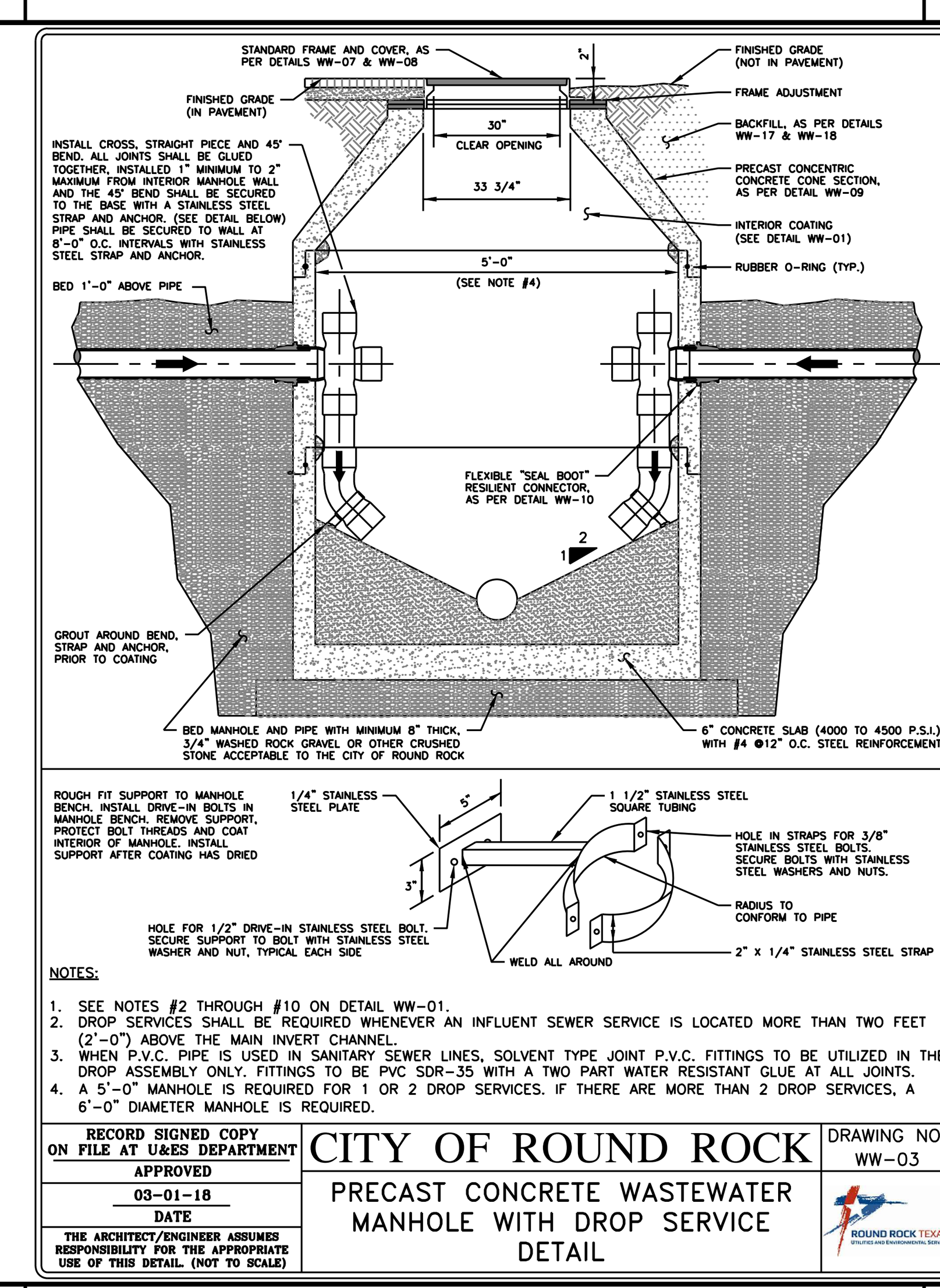


NOTE:
WHERE A NON-PRESSURIZED SANITARY SEWER PARALLELS A WATERLINE, THE SEWER SHALL BE CONSTRUCTED OF CAST IRON, DUCTILE IRON OR PVC MEETING ASTM SPECIFICATIONS WITH A PRESSURE RATING FOR BOTH PIPE AND JOINTS OF 150 PSI. THE VERTICAL SEPERATION SHALL BE A MINIMUM OF 2' BETWEEN OUTSIDE DIAMETERS AND THE HORIZONTAL SEPARATION SHALL BE A MINIMUM OF 4' BETWEEN OUTSIDE DIAMTERES. THE SEWER SHALL BE LOCATED BELOW THE WATERLINE.

09 **WATER LINE CROSSING DETAILS** NTS



10 **DOUBLE CLEANOUT** NTS



11 **DROP MANHOLE** NTS

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11.04.2022

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DATE SIGNED: 4/30/2023
ISSUED FOR: AGENCY REVIEW

. Eagles Nest 3
Lot KE - Bldgs. 6-9

3259 Eagles Nest St.
Round Rock, Texas,
78665

Issue

1	09.23.2022	50% CD - Pricing
2	11.04.2022	95% CD
3	12.05.2022	CORR/TCEQ
4	4.30.2023	TCEQ UPDATE

Project Number: 22-019g
Drawn By: JSR
Checked By: RB

UTILITY DETAILS

C74

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SDP2208-0002

13-018.2C74, 4/30/2023 1:48:47 PM, TerryH