Civil | Environmental | Land Development

WATER POLLUTION ABATEMENT PLAN (WPAP)

FOR

HANWHA TEXAS PLANT

3546 N. IH 35 SERVICE RD,
GEORGETOWN, WILLIAMSON COUNTY, TX 78626

Prepared For:

HANWHA ADVANCED MATERIALS AMERICA LLC
3546 N. IH 35 SERVICE ROAD

Prepared By:

SOUTHWEST ENGINEERS, INC

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06.07.2024

JUNE 2024
Project #: 1154-001-23

Southwest Engineers
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I.

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 will be denied. Please note that because the technical review is underway, whether the application is withdrawn or denied **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:

- If the technical review has begun your application can be denied/withdrawn, your fees will be forfeited, and the plan will have to be resubmitted.
- 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 denied/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 affected 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: Hanwha Advanced Materials America LLC					**2. Regulated Entity No.:** 111871943				
3. Customer Name: Jusun Lee					**4. Customer No.:**				
5. Project Type: **(Please circle/check one)**	New		Modification		Extension		Exception		
6. Plan Type: **(Please circle/check one)**	WPAP	CZP	SCS	UST / AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures	
7. Land Use: **(Please circle/check one)**	Residential		Non-residential		**8. Site (acres):** ±38.17				
9. Application Fee:	$6,500		**10. Permanent BMP(s):**		Batch Detention Pond				
11. SCS (Linear Ft.):	N/A		**12. AST/UST (No. Tanks):**		N/A				
13. County:	Williamson		**14. Watershed:**		Berry Creek				

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.)	___	___	_✓_
Region (1 req.)	___	___	_✓_
County(ies)	___	___	_✓_
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 ___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.
Matthew A. Dringenberg, P.E.
Print Name of Customer/Authorized Agent Matt D 05/16/2024
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):	

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II.

GENERAL INFORMATION FORM (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: Matthew A. Dringenberg, P.E.

Date: 05/16/2024

Signature of Customer/Agent:

Project Information

1. Regulated Entity Name: Hanwha Texas Plant
2. County: Williamson County
3. Stream Basin: Dry Berry Creek
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: Jusun Lee
   Entity: Hanwha Advanced Materials America LLC
   Mailing Address: 3546 N. IH 35 Service Road
   City, State: Georgetown, TX Zip: 78626
   Telephone: 810-701-9036 FAX: _____
   Email Address: jay.lee@hanwha.us

8. Agent/Representative (If any):

   Contact Person: Matthew A. Dringenberg, P.E.
   Entity: Southwest Engineers, Inc.
   Mailing Address: 205 Cimarron Park Loop, Suite B
   City, State: Buda, TX Zip: 78610
   Telephone: (512) 312-4336 FAX: _____
   Email Address: matt.dringenberg@swengineers.com

9. Project Location:

   ☐ The project site is located inside the city limits of _____.
   ☒ The project site is located outside the city limits but inside the ETJ (extra-territorial jurisdiction) of Georgetown.
   ☐ 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.

    3546 N IH 35 Service Road, Georgetown, Texas 78626

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: _____

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:

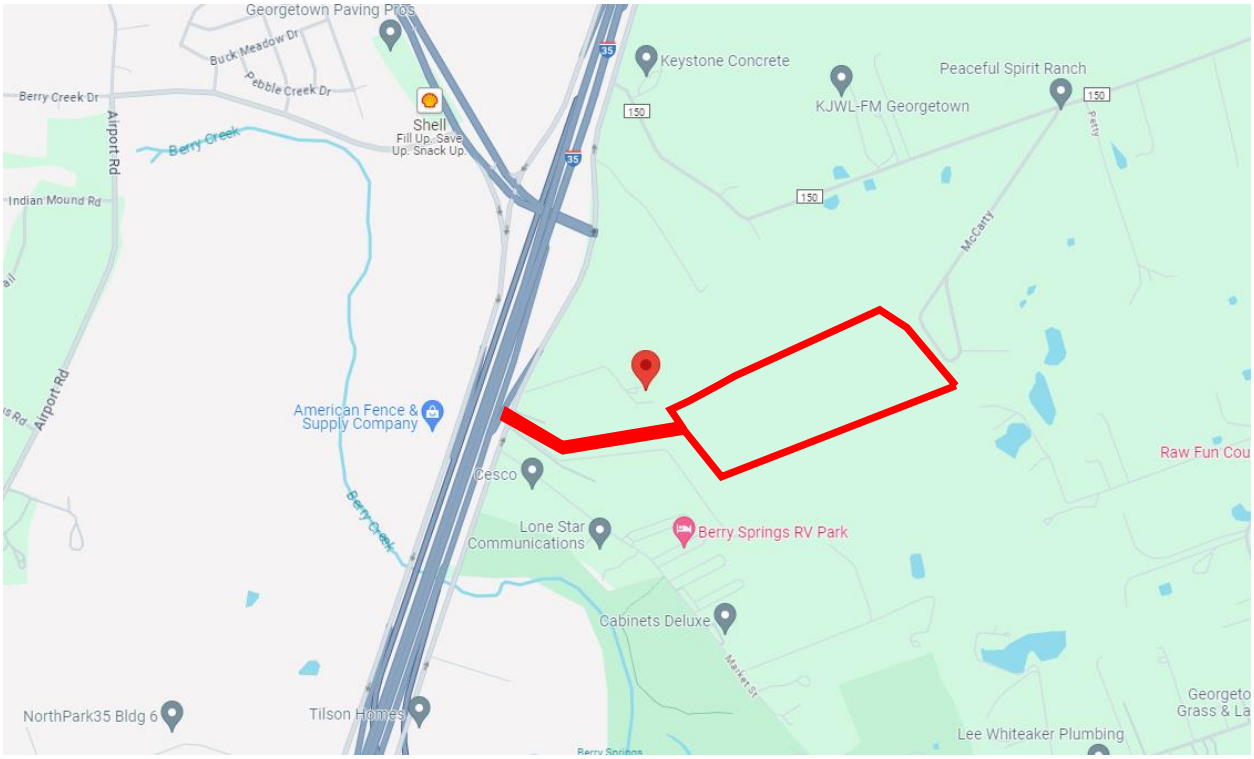
- ☐ TCEQ cashier
- ☒ Austin Regional Office (for projects in Hays, Travis, and Williamson Counties)
- ☐ San Antonio Regional Office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)

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.

WATER POLLUTION ABATEMENT PLAN
ATTACHMENT A

ROAD/LOCATION MAP



3546 N I-35,
GEORGETOWN, TEXAS 78626

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

GEORGETOWN QUADRANGLE
TEXAS - WILLIAMSON COUNTY
7.5-MINUTE SERIES

PROJECT SITE

Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid:Universal Transverse Mercator, Zone 14R

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery.....NAIP, August 2016 - November 2016
Roads..... U.S. Census Bureau, 2015 - 2019
Names.....GNIS, 2003 - 2022
Hydrography.....National Hydrography Dataset, 2002 - 2021
Contours.....National Elevation Dataset, 2004
Boundaries.....Multiple sources; see metadata file 2019 - 2021

Wetlands.....FWS National Wetlands Inventory Not Available

MN
GN
3°42′ 66 MILS
0°40′ 12 MILS
UTM GRID AND 2019 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000 - m Square ID
PV
00
PU
Grid Zone Designation 14R

SCALE 1:24 000

1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard.

TEXAS
QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

ADJOINING QUADRANGLES
1 Florence
2 Cobbs Cavern
3 Jarrell
4 Leander NE
5 Weir
6 Leander
7 Round Rock
8 Hutto

ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

GEORGETOWN, TX
2022

NSN. 7643016396286
NGA REF NO.USGSX24K17084

GENERAL INFORMATION SECTION
ATTACHMENT C

PROJECT DESCRIPTION

The subject property consists of a ±38.17-acre tract located at 3546 IH 35 N., Georgetown, TX 78626. The property is located within the City of Georgetown's 2-mile Extra-Territorial Jurisdiction (ETJ), Williamson County, and the Edwards Aquifer Recharge Zone as defined by the Texas Commission on Environmental Quality (TCEQ). The project tract is located within the Dry Berry Creek Watershed. Currently, the tract consists of a single-family dwelling structure, barn, and associated gravel driveway with runoff draining primarily by overland sheet flow in an easterly direction toward Dry Berry Creek. The proposed development includes the construction of an industrial building with associated drive, emergency access drive, parking lot, water quality/detention pond (Batch Detention Pond), and on-site septic facility. While the majority of improvements for this development are located on the 38.17-acre tract, there is also a proposed Emergency Access Drive located across the adjacent tract to the north. This area is included within the Limits of Construction as shown on the Temporary Erosion and Sedimentation Control Plan (1 of 2). Please note that the Limits of Construction (37.08 acres) is less than the total site area (38.17 acres) since the easternmost portion of the property is to remain undisturbed.

- Limits of Construction: ±37.08-acres
- Legal Boundaries: ±38.17-acres
- Total Impervious Cover: ±12.81-acres

The batch detention pond will be used as a Permanent Best Management Practice (BMP) onsite to treat storm water generated from the proposed development. The BMP has been designed in accordance with TCEQ's Edwards Aquifer Rules Technical Guidance on Best Management Practices RG-348 Addendum Sheet. Stormwater will be detained in the batch detention pond prior to being released into the existing Dry Berry Creek.

This Water Pollution Abatement Plan (WPAP) describes the measures taken to design the batch detention pond. The design calculations are based on the proposed impervious cover, which consists of building roofs and paved areas (asphalt and concrete). Please refer to the site construction drawings provided with this WPAP for more information.

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III.

GEOLOGIC ASSESSMENT FORM (TCEQ-0585)

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

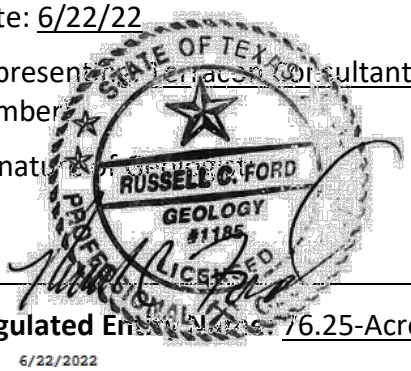
To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Print Name of Geologist: Russell C Ford Telephone: 512 442-1122

Date: 6/22/22 Fax: _____

Represent[illegible]Consultants, Inc. (Name of Company and TBPG or TBPE registration number)

Signature of Geologist



Regulated Entity Name: 76.25-Acre Site, 3600 N. IH-35, Georgetown, Texas

Project Information

1. Date(s) Geologic Assessment was performed: 6/7/22
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)
QuC	D	6

Soil Name	Group*	Thickness(feet)
BrB	D	5
EaD	D	3
KrA	D	5
KrB	D	5
SvA	C	5
SvB	C	5
OkA	B	6

** 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" = 400 '
   Site Soils Map Scale (if more than 1 soil type): 1" = 400 '

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.

ATTACHMENT A **NO FEATURES OBSERVED**

GEOLOGIC ASSESSMENT TABLE			PROJECT NAME: 76.25-Acre Site, 3600 N. IH-35, Georgetown, Texas																
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	

* DATUM NAD27

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	20
SH	Sinkhole	20
CD	Non-karst closed depression	5
Z	Zone, clustered or aligned features	

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
Crest, Hilltop, Hillside, Drainage, Floodplain, Streambed

I have read, understand, and followed the Texas Natural Resource Conservation Commission's Instructions to Geologists. The information presented on these forms and in this document is a true representation of the conditions observed in the field.

My signature certifies that I am currently a geologist as defined by 30 TAC 213

RUSSELL C. FORD GEOLOGY 11185 LICENSED PROFESSIONAL

_____ Date _____

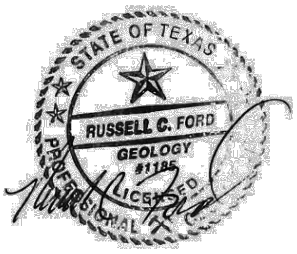
TNRCC-0585-Table (Rev. 5-1-02) Sheet _____ of _____

6/22/2022

ATTACHMENT B
Stratigraphic Column
76.25-Acre Site
3600 N. IH-35
Georgetown, Texas

HYDROGEOLOGIC SUBDIVISION	FORMATION	THICKNESS (feet)	LITHOLOGY
Confining Layer	Quaternary alluvium	20	Gravel, sand, silt, and clay along streams

Source: Senger, Collins and Kreitler, 1990



6/22/2022

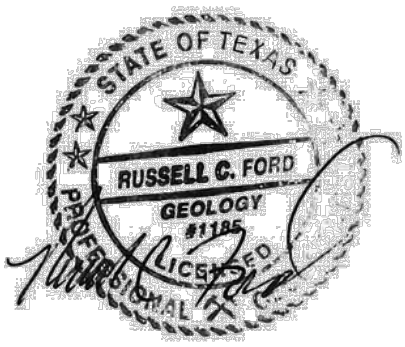
ATTACHMENT C
SITE-SPECIFIC GEOLOGY

The Geologic Assessment (GA) of the 76.25-Acre Site was performed by Mr. Russell C. Ford, P.G., of Terracon on June 7, 2022. The site is four tracts of mostly vacant land totaling approximately 76.25 acres, which were improved in 1975/76 with several small rural residential structures and associated agricultural out-buildings, located at 3600 North I-35, northeast of its intersection with Market Street in north Georgetown, Williamson County, Texas. The areas immediately surrounding the site are a mix of undeveloped and residential properties. The site is characterized as gently sloping to the east toward Dry Berry Creek which is located along the eastern edge of the site. Site elevation ranges from about 660 feet above mean sea level (msl) to 710 feet above msl.

The surficial geologic unit present at the site has been identified as the Quaternary alluvium. Exhibit 2 (attached) is a geologic map of the site. The Quaternary alluvium consists of varying amounts of gravels, sands, silts and clays associated with stream beds and floodplains. The site is located entirely within the recharge zone of the Edwards Aquifer and the recharge zone boundary is located adjacent to the site along Dry Berry Creek. Table 1 (attached) is a stratigraphic column prepared for the site. No faulting was observed on the site, however, there is a mapped fault crossing the site. The fault, which trends toward the north-northeast, is associated with the Balcones Fault zone which represents the dominant structural trend in the vicinity of the site. The completed Geologic Assessment form is attached.

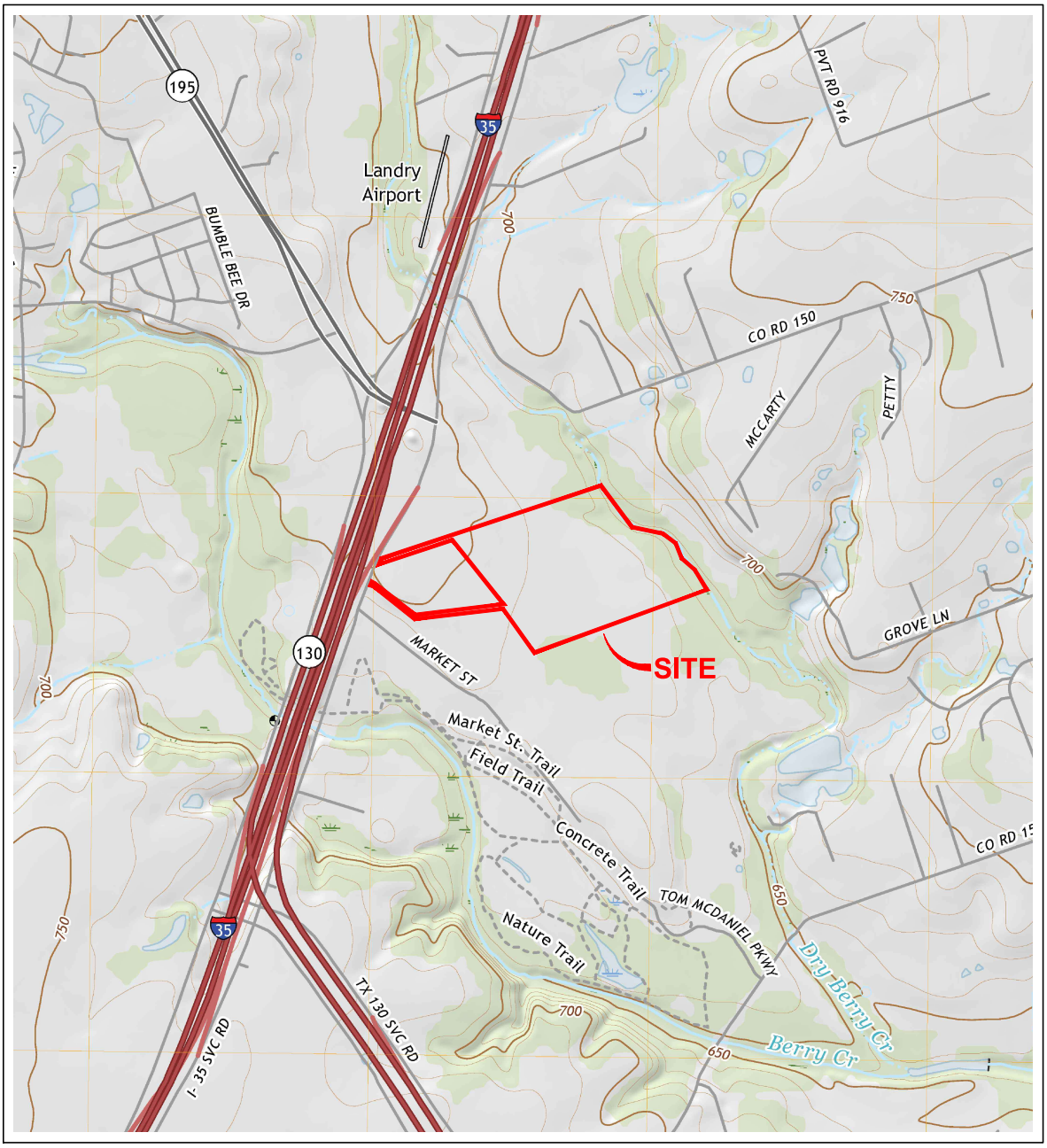
No geologic features were observed on the site. Due to the lack of any significant sensitive recharge features observed on the site and the presence of a relatively impermeable soil cover present, the potential for fluid movement to the Edwards aquifer beneath the project improvement areas is considered low.

No springs were observed onsite. As previously indicated, Dry Berry Creek is located along the eastern site boundary. This stream would be subject to the Stream Buffer requirements contained in the City of Georgetown Ordinance 2015-14 which would generally coincide with the FEMA 1% floodplain limits. A review of the site maps contained in the City of Georgetown Ordinance 2015-14 indicated there are no known springs occupied by the Georgetown Salamander on the site and the nearest known occupied site is located approximately 3 miles south-southwest of the site (San Gabriel Spring).



6/22/2022

UNITED STATES – DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY



SCALE 1:24,000

1 .5 0 KILOMETERS 1 2

1000 0 METERS 1000 2000

1 .5 0 1

MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000

CONTOUR INTERVAL 10 FEET

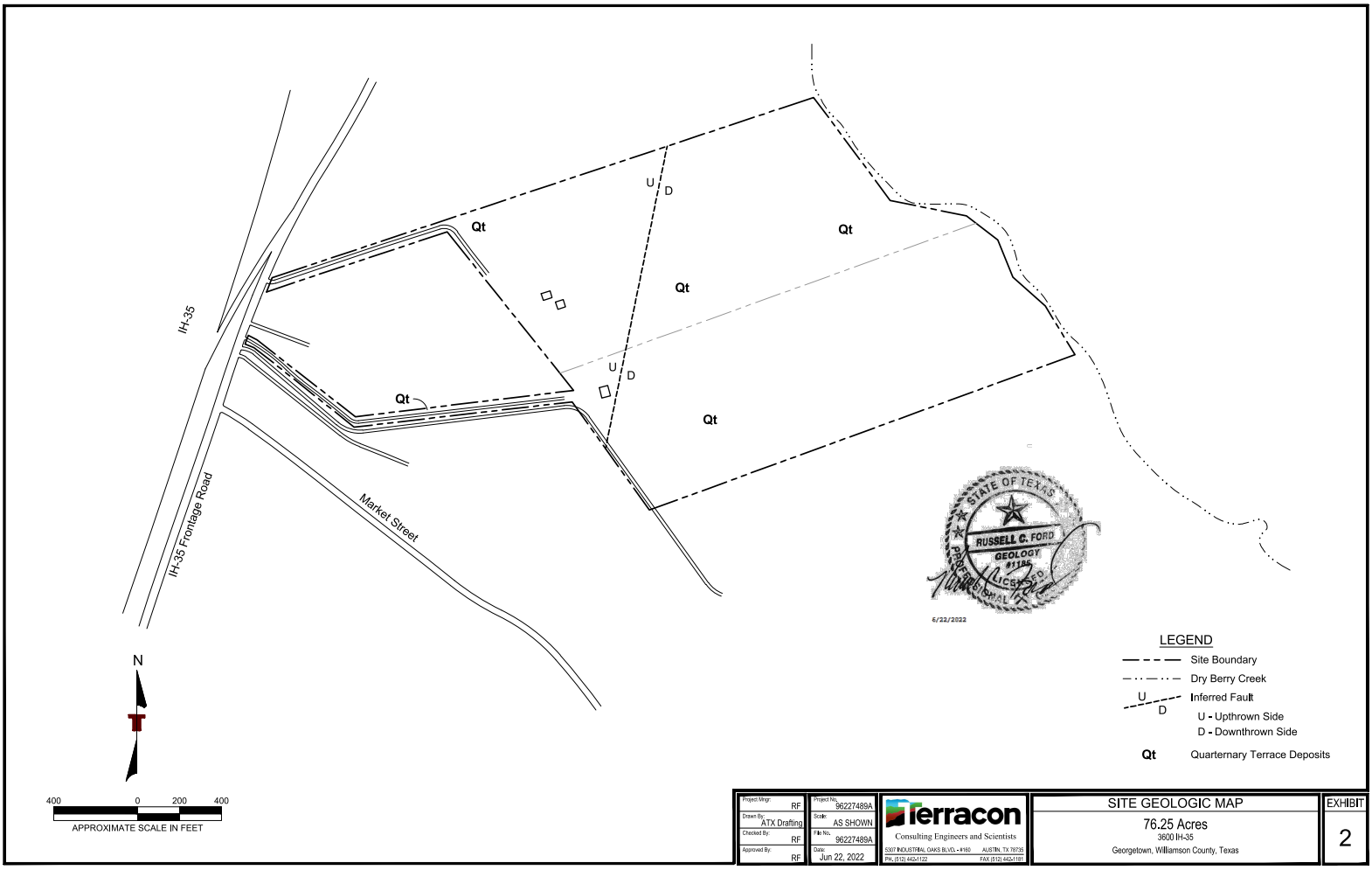
NATIONAL GEODETIC VERTICAL DATUM OF 1988

Georgetown, Texas

2019

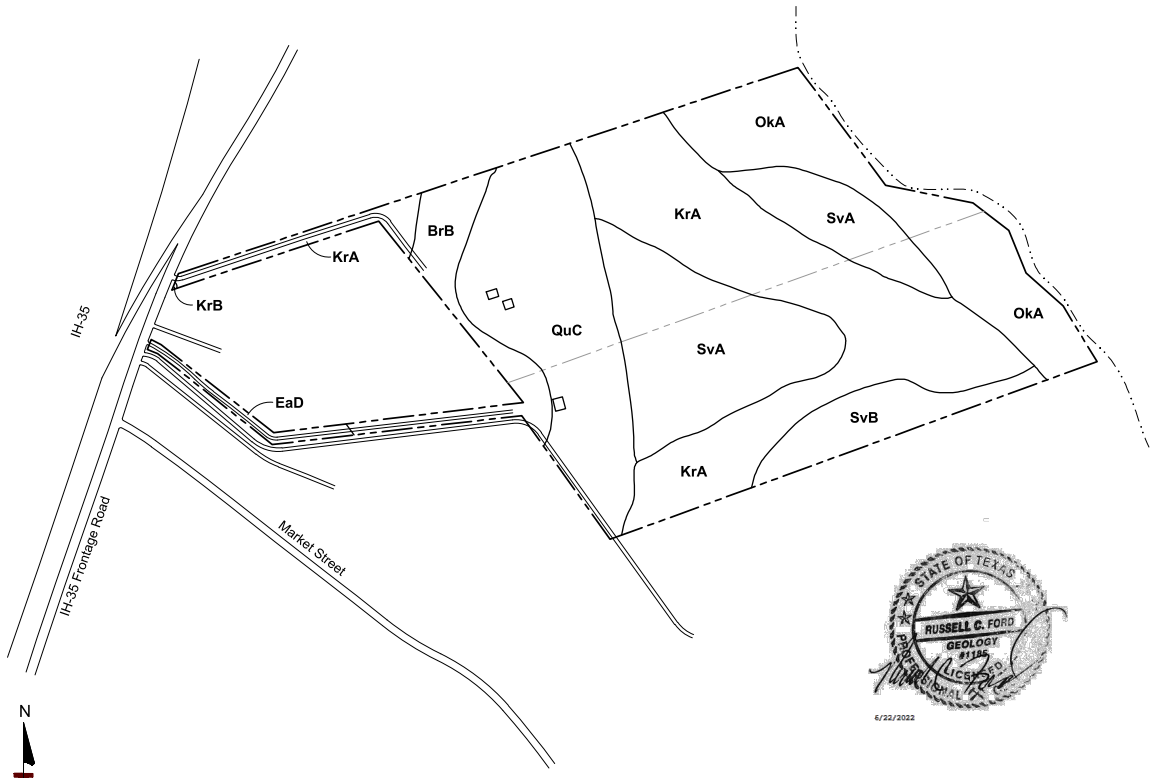
7.5 MINUTE SERIES (TOPOGRAPHIC)

Project Mngr: RF	Project No. 96227489A	Terracon Consulting Engineers and Scientists	TOPOGRAPHIC MAP	EXHIBIT
Drawn By: ATX Drafting	Scale: AS SHOWN	5307 INDUSTRIAL OAKS BLVD. - #160 AUSTIN, TX 78735	76.25 Acres	1
Checked By: RF	File No. 96227489A	PH. (512) 442-1122 FAX (512) 442-1181	3600 IH-35	
Approved By: RF	Date: Jun 22, 2022		Georgetown, Williamson County, Texas	



Project Mngr: RF	Project No: 96227489A	terracon	SITE GEOLOGIC MAP
Drawn By: ATX Drafting	Scale: AS SHOWN	Consulting Engineers and Scientists	76.25 Acres
Checked By: RF	File No.: 96227489A	5307 INDUSTRIAL OAKS BLVD. • #160 AUSTIN, TX 78735	3600 IH-35
Approved By: RF	Date: Jun 22, 2022	PH. (512) 442-1122 FAX (512) 442-1181	Georgetown, Williamson County, Texas

EXHIBIT 2



STATE OF TEXAS
RUSSELL C. FORD
GEOLOGY
#1185
LICENSED
PROFESSIONAL
6/22/2022

LEGEND

— — —	Site Boundary
— · — · —	Dry Berry Creek
BrB	Branyon Clay (1%-3% slopes)
EaD	Eckrant Cobbly Clay (1%-8% slopes)
KrA	Krum Silty Clay (0%-1% slopes)
KrB	Krum Silty Clay (1%-3% slopes)
OkA	Oakalla Silty Clay Loam (0%-2% slopes)
QuC	Queeny Clay Loam (1%-5% slopes)
SvA	Sunev Silty Clay Loam (0%-1% slopes)
SvB	Sunev Silty Clay Loam (1%-3% slopes)

400 0 200 400
APPROXIMATE SCALE IN FEET

Project Mngr: RF	Project No: 96227489A	Terracon Consulting Engineers and Scientists	SITE SOILS MAP
Drawn By: ATX Drafting	Scale: AS SHOWN	5307 INDUSTRIAL OAKS BLVD. • #160 AUSTIN, TX 78735	76.25 Acres
Checked By: RF	File No.: 96227489A	PH. (512) 442-1122 FAX: (512) 442-1181	3600 IH-35
Approved By: RF	Date: Jun 22, 2022		Georgetown, Williamson County, Texas

EXHIBIT 3

Southwest Engineers
WWW.SWENGINEERS.COM | TBPE NO. F-1909

BUDA
205 CIMARRON PARK LOOP
BUDA, TX 78610
512-312-4336

IV.

MODIFICATION OF A PREVIOUSLY APPROVED PLAN (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: Matthew A. Dringenberg, P.E.

Date: 05/16/2024

Signature of Customer/Agent:

Project Information

1. Current Regulated Entity Name: Hanwha Texas Plant
   Original Regulated Entity Name: Hanwha Texas Plant
   Regulated Entity Number(s) (RN): 111871943
   Edwards Aquifer Protection Program ID Number(s): 11003837
   ☐ The applicant has not changed and the Customer Number (CN) is: _____
   ☒ 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	38.17	38.17
Type of Development	Industrial	Industrial
Number of Residential Lots	N/A	N/A
Impervious Cover (acres)	12.34	12.81
Impervious Cover (%	32.3	33.6
Permanent BMPs	Batch Detention Pond	Batch Detention Pond
Other	____	____

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

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

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

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.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

February 9, 2024

Mr. Jarrett Dooley
Berry Creek Partners LP
1102 South Rock Street
Georgetown, Texas 78626

Re: Approval of a Water Pollution Abatement Plan (WPAP)
Hanwha Texas Plant; Located NE of N IH-35 Service RD and Market ST; Georgetown, Williamson County, Texas
Edwards Aquifer Protection Program ID: 11003837, Regulated Entity No. RN111871943

Dear Mr. Jarrett Dooley:

The Texas Commission on Environmental Quality (TCEQ) has completed its review on the application for the above-referenced project submitted to the Edwards Aquifer Protection Program (EAPP) by Southwest Engineers, Inc. on behalf of the applicant, Berry Creek Partners LP on January 3, 2024. Final review of the application was completed after additional material was received on February 6, 2024.

As presented to the TCEQ, the application was prepared in general compliance with the requirements of 30 Texas Administrative Codes (TAC) Chapter §213. The permanent best management practices (BMPs) and measures represented in the application were prepared by a Texas licensed professional engineer (PE). All construction plans and design information were sealed, signed, and dated by a Texas licensed PE. Therefore, the application for the construction of the proposed project and methods to protect the Edwards Aquifer are **approved,** subject to applicable state rules and the conditions in this letter.

This approval expires two 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 officially requested. This approval or extension will expire, and no extension will be granted if more than 50 percent of the project has not been completed within ten years from the date of 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 in accordance with 30 TAC §50.139.

PROJECT DESCRIPTION

The proposed industrial project will have an area of approximately 38.17 acres. The project will include the construction of an industrial building, an access drive and emergency access drive, and a parking lot. The impervious cover will be 12.34 acres (32.3 percent). According to a letter dated, January 23, 2024, signed by Christopher Moreno, with Williamson County, the site in the development is acceptable for the use of on-site sewage facilities.

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, a batch detention basin, designed using the TCEQ technical guidance, *RG-348, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices,* will be constructed to treat stormwater runoff. The required total suspended solids (TSS) treatment for this project is 10480 pounds of TSS generated from the 12.34 acres of impervious cover. The approved permanent BMPs and measures meet the required 80 percent removal of the increased load in TSS caused by the project.

The permanent BMPS shall be operational prior to occupancy or use of the proposed project. Inspection, maintenance, repair, and retrofit of the permanent BMPs shall be in accordance with the approved application.

GEOLOGY

According to the Geologic Assessment (GA) included with the application, the surficial units of the site are the Quaternary alluvium formation (Qa). No sensitive geologic features were identified in the GA. The site assessment conducted on January 23, 2024, by TCEQ staff determined the site to be generally as described by the GA.

STANDARD CONDITIONS

1. The plan holder (applicant) must comply with all provisions of 30 TAC Chapter §213 and all technical specifications in the approved plan. The plan holder should also acquire and comply with additional and separate approvals, permits, registrations or authorizations from other TCEQ Programs (i.e., Stormwater, Water Rights, Dam Safety, Underground Injection Control) as required based on the specifics of the plan.

2. In addition to the rules of the Commission, the plan holder must also comply with state and local ordinances and regulations providing for the protection of water quality as applicable.

Prior to Commencement of Construction:

3. Within 60 days of receiving written approval of an Edwards Aquifer protection plan, the plan holder must submit to the EAPP proof of recordation of notice in the county deed records, with the volume and page number(s) of the county record. A description of the property boundaries shall be included in the deed recordation in the county deed records. TCEQ form, Deed Recordation Affidavit (TCEQ-0625), may be used.

4. The plan holder of any approved Edwards Aquifer protection plan must notify the EAPP and obtain approval from the executive director prior to initiating any modification to the activities described in the referenced application following the date of the approval.

5. The plan holder must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to the EAPP no later than 48 hours prior to commencement of the regulated activity. 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.

6. Temporary erosion and sedimentation (E&S) controls as described in the referenced application, 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. 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.

7. 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 or gravel. 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.

During Construction:

8. This approval does not authorize the installation of temporary or permanent aboveground storage tanks on this project that will have a total storage capacity of five hundred gallons or more of static hydrocarbons or hazardous substances without prior approval of an Aboveground Storage Tank facility application.

9. If any sensitive feature is encountered during construction, replacement, or rehabilitation on this project, all regulated activities must be **immediately** suspended near it and notification must be made to TCEQ EAPP staff. Temporary BMPs must be installed and maintained to protect the feature from pollution and contamination. 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.

10. All water wells, including injection, dewatering, and monitoring wells shall be identified in the geologic assessment and must be in compliance with the requirements of the Texas Department of Licensing and Regulation 16 TAC Chapter §76 and all other locally applicable rules, as appropriate.

11. 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.

12. Intentional discharges of sediment laden water are not allowed. If dewatering becomes necessary, the discharge must be filtered through appropriately selected BMPs.

13. 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.

14. 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.

After Completion of Construction:

15. Owners of permanent BMPs and temporary measures must ensure that the BMPs and measures are constructed and function as designed. A Texas licensed PE must certify in

writing that the **permanent** BMPs or measures were constructed as designed. The certification letter must be submitted to the EAPP within 30 days of site completion.

16. The applicant shall be 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 or the ownership of the property is transferred to the entity. A copy of the transfer of responsibility must be filed with the executive director through the EAPP within 30 days of the transfer. TCEQ form, Change in Responsibility for Maintenance on Permanent BMPs and Measures (TCEQ-10263), may be used.

The holder of the approved Edwards Aquifer protection plan is responsible for compliance with Chapter §213 and any condition of the approved plan through all phases of plan implementation. Failure to comply with any condition within this approval letter is a violation of Chapter §213 and is subject to administrative rule or orders and penalties as provided under §213.10 of this title (relating to Enforcement). Such violations may also be subject to civil penalties and injunction. Upon legal transfer of this property, the new owner is required to comply with all terms of the approved Edwards Aquifer protection plan.

This action is taken as delegated by the executive director of the Texas Commission on Environmental Quality. If you have any questions or require additional information, please contact Arturo Maldonado of the Edwards Aquifer Protection Program at 512-239-7087 or the regional office at 512-339-2929.

Sincerely,

Lillian Butler

Lillian Bulter, Section Manager
Edwards Aquifer Protection Program
Texas Commission on Environmental Quality

LIB/am

cc: Mr. Campbell Key, P.E., Southwest Engineers, Inc.

MODIFICATION OF A PREVIOUSLY APPROVED WATER POLLUTION ABATEMENT PLAN
ATTACHMENT B

NARRATIVE OF PROPOSED MODIFICATON

A Water Pollution Abatement Plan (WPAP) was approved for this development on February 9th, 2024, in which the developer, Berry Creek Partners, LP proposed a Batch Detention Pond as the Permanent Best Management Practice (BMP) for treatment of stormwater runoff resulting from the proposed development.

The intent of this proposed modification is to modify the Batch Detention Pond footprint and update the corresponding water quality calculations. The site layout has also been adjusted which increased the impervious cover from 12.34-ac to 12.81-ac. Water quality requirements for the increase in impervious cover are accounted within this WPAP modification.

The water quality filtration system (Batch Detention Pond) will be used as the permanent Best Management Practices (BMPs) onsite to treat storm water generated from the development. The BMPs have been designed in accordance with TCEQ's Technical Guidance Manual on Best Management Practices RG-348 (Section 3.2.17).

MODIFICATION OF A PREVIOUSLY APPROVED WATER POLLUTION ABATEMENT PLAN

ATTACHMENT C

CURRENT SITE PLAN OF THE APPROVED PROJECT

Please refer to the current Hanwha Texas Plant construction plan set.

Southwest Engineers
WWW.SWENGINEERS.COM | TBPE NO. F-1909

BUDA
205 CIMARRON PARK LOOP
BUDA, TX 78610
512-312-4336

V.

WATER POLLUTION ABATEMENT PLAN APPLICATION FORM (TCEQ-0584)

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: Matthew A. Dringenberg, P.E.

Date: 05/16/2024

Signature of Customer/Agent:

Regulated Entity Name: Hanwha Texas Plant

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):+/- 38.17 Acres

3. Estimated projected population:N/A

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	205233	÷ 43,560 =	4.71
Parking	67953	÷ 43,560 =	1.56
Other paved surfaces	284882	÷ 43,560 =	6.54
Total Impervious Cover	558068	÷ 43,560 =	12.81

Total Impervious Cover 12.81 **÷ Total Acreage** 38.17 **X 100 =** 33.6**% 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:

_____% Domestic	_____Gallons/day
100 % Industrial	1,600 Gallons/day
_____% Commingled	_____Gallons/day
TOTAL gallons/day 1,600	

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 _____ (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" = 100'.

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 _____ (#) 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 FORM
ATTACHMENT A

FACTORS AFFECTING SURFACE WATER QUALITY

DURING CONSTRUCTION

Non-Storm Water Discharges - The following non-storm water discharges may occur from the site during the construction period:

- Non-point discharge of paint and solvents
- Water used to wash vehicles or control dust
- Water from utility line flushing during initial line testing
- Petroleum drippings from vehicle movement
- Pavement wash waters (where no spills or leaks of toxic or hazardous materials have occurred)
- Groundwater (from dewatering of excavation)
- Silt Runoff form soil disturbance
- Trash and Debris (Litter) and discarded Food and Tobacco Products

All non-storm water discharge will be directed to the Erosion and Sedimentation Controls (Best Management Practices) to remove any suspended solids contained therein. Material management practices will be utilized to reduce the risk of spills, or other accidental exposure of the materials listed above to storm water runoff. These and any other sources of pollutants that may affect storm water quality will be screened and filtered by temporary BMPs, which will be installed prior to the commencement of site clearing.

POST CONSTRUCTION

Non-Storm Water Discharges after construction has been completed which can affect water quality include:

- Lawn fertilizer and pesticides
- Petroleum drippings from vehicle movement
- Cleaning products used out-of-doors not captured in sanitary sewer
- Landscape Maintenance

Post-construction storm water discharges typically will transport sediment in the form of dirt and dust accumulated on streets and other impervious flatwork, rooftops and sediment from erosion of grassy areas. That material will be conveyed to the water quality pond (where most pollutants will be removed), and then conveyed to the proposed detention pond and finally discharge sheet flows into the undeveloped land.

WATER POLLUTION ABATEMENT PLAN APPLICATION FORM
ATTACHMENT B

VOLUME AND CHARACTER OF STORMWATER

The project site is defined by one (1) major existing drainage area and it drains mainly from west to east across the property. Using City of Georgetown runoff coefficients and Atlas 14 rainfall data, the existing drainage area will produce a peak flow of approximately 261.38 cubic feet per second (cfs) during a 100-year storm event. Please refer to the "Existing Drainage Area Map" provided in the site construction drawings for more information. This existing drainage area naturally conveys storm water via overland flow into Dry Berry Creek.

In proposed conditions, the impervious cover on-site will be approximately 12.81-acres (+/- 33.6% of the total property acreage). Using City of Georgetown runoff coefficients and Atlas 14 rainfall data, the proposed drainage area will produce a peak flow of approximately 254.00 cfs during a 100-year storm event including attenuation from the proposed detention pond. Please refer to the "Proposed Drainage Area Map" provided in the site construction drawings for more information. Please see the Project Narrative in General Information Section - Attachment C for more information.

Erosion Controls will be installed to decrease and/or prevent sediment runoff during construction. Please refer to the site construction drawings for further details.

WATER POLLUTION ABATEMENT PLAN APPLICATION FORM
ATTACHMENT C

SUITABILITY LETTER FROM AUTHORIZED AGENT (OSSF)

Department of Infrastructure
County Engineer's Office
3151 SE Inner Loop, Ste B
Georgetown, TX 78626
T: 512.943.3330
F: 512.943.3335

J. Terron Evertson, PE, DR, CFM

WILLIAMSON COUNTY
1848

January 23, 2024

Berry Creek Partners LP
1102 S. Rock Street
Georgetown, Texas 78626

RE: 3546 IH 35 N, Georgetown, TX 78626
AW0051 AW0051 – Berry, J. Sur., ACRES 2.12
AW0051 AW0051 – Berry, J. Sur., ACRES 36.00

The above referenced property is located within the Edwards Aquifer Recharge Zone.

Based on the surrounding subdivisions and the soil survey for Williamson County and planning material received, this office is able to determine that the soil and site conditions of this lot is suitable to allow the use of on-site sewage facilities (OSSF). It should be noted that this office has not actually studied the physical properties of this site. Site specific conditions such as OSSF setbacks, recharge features, drainage, soil conditions, etc…, will need taken into account in planning any OSSF.

These OSSF's will have to be designed by a professional engineer or a registered sanitarian. An Edwards Aquifer protection plan shall be approved by the appropriate TCEQ regional office before an authorization to construct an OSSF may be issued. The owner will be required to inform each prospective buyer, lessee or renter of the following in writing:

- That an authorization to construct shall be required before an OSSF can be constructed in the subdivision;
- That a notice of approval shall be required for the operation of an OSSF;
- Whether an application for a water pollution abatement plan as defined in Chapter 213 has been made, whether it has been approved and if any restrictions or conditions have been placed on the approval.

If this office can be of further assistance, please do not hesitate to call.

Sincerely,

Christopher Moreno, OS 35962
Williamson County - OSSF

WATER POLLUTION ABATEMENT PLAN APPLICATION FORM
ATTACHMENT D

EXCEPTION TO THE REQUIRED GEOLOGIC ASSESSMENT

Exception to the required Geologic Assessment is not applicable. Please see the Geological Assessment Form (TCEQ-0585).

Southwest Engineers
WWW.SWENGINEERS.COM | TBPE NO. F-1909

BUDA
205 CIMARRON PARK LOOP
BUDA, TX 78610
512-312-4336

VI.

TEMPORARY STORMWATER SECTION (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: Matthew A. Dringenberg, P.E.

Date: 05/16/2024

Signature of Customer/Agent:

Regulated Entity Name: Hanwha Texas Plant

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: _____

   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: Dry Berry Creek

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 STORMWATER SECTION
ATTACHMENT A

SPILL RESPONSE ACTIONS

Spill Prevention and Control

The objective of this section is to describe measures to prevent or reduce the discharge of pollutants to drainage systems or watercourses from leaks and spills by reducing the chance for spills, stopping the source of spills, containing and cleaning up spills, properly disposing of spill materials, and training employees. The following steps will help reduce the stormwater impacts of leaks and spills:

Education

(1) Be aware that different materials pollute in different amounts. Make sure that each employee knows what a "significant spill" is for each material they use, and what is the appropriate response for "significant" and "insignificant" spills. Employees should also be aware of when spill must be reported to the TCEQ. Information available in 30 TAC 327.4 and 40 CFR 302.4.
(2) Educate employees and subcontractors on potential dangers to humans and the environment from spills and leaks.
(3) Hold regular meetings to discuss and reinforce appropriate disposal procedures (incorporate into regular safety meetings).
(4) Establish a continuing education program to indoctrinate new employees.
(5) Have contractor's superintendent or representative oversee and enforce proper spill prevention and control measures.

General Measures

(1) To the extent that the work can be accomplished safely, spills of oil, petroleum products, substances listed under 40 CFR parts 110,117, and 302, and sanitary and septic wastes should be contained and cleaned up immediately.
(2) Store hazardous materials and wastes in covered containers and protect from vandalism.
(3) Place a stockpile of spill cleanup materials where it will be readily accessible.
(4) Train employees in spill prevention and cleanup.
(5) Designate responsible individuals to oversee and enforce control measures.
(6) Spills should be covered and protected from stormwater runon during rainfall to the extent that it doesn't compromise clean up activities.
(7) Do not bury or wash spills with water.
(8) Store and dispose of used clean up materials, contaminated materials, and recovered spill material that is no longer suitable for the intended purpose in conformance with the provisions in applicable BMPs.
(9) Do not allow water used for cleaning and decontamination to enter storm drains or watercourses. Collect and dispose of contaminated water in accordance with applicable regulations.
(10) Contain water overflow or minor water spillage and do not allow it to discharge into drainage facilities or watercourses.

(11) Place Material Safety Data Sheets (MSDS), as well as proper storage, cleanup, and spill reporting instructions for hazardous materials stored or used on the project site in an open, conspicuous, and accessible location.
(12) Keep waste storage areas clean, well organized, and equipped with ample cleanup supplies as appropriate for the materials being stored. Perimeter controls, containment structures, covers, and liners should be repaired or replaced as needed to maintain proper function.

Cleanup

(1) Clean up leaks and spills immediately.
(2) Use a rag for small spills on paved surfaces, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be disposed of as hazardous waste.
(3) Never hose down or bury dry material spills. Clean up as much of the material as possible and dispose of properly. See the waste management BMPs in this section for specific information.

Minor Spills

(1) Minor spills typically involve small quantities of oil, gasoline, paint, etc. which can be controlled by the first responder at the discovery of the spill.
(2) Use absorbent materials on small spills rather than hosing down or burying the spill.
(3) Absorbent materials should be promptly removed and disposed of properly.
(4) Follow the practice below for a minor spill:
(5) Contain the spread of the spill.
(6) Recover spilled materials.
(7) Clean the contaminated area and properly dispose of contaminated materials.

Semi-Significant Spills
Semi-significant spills still can be controlled by the first responder along with the aid of other personnel such as laborers and the foreman, etc. This response may require the cessation of all other activities. Spills should be cleaned up immediately:

(1) Contain spread of the spill.
(2) Notify the project foreman immediately.
(3) If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (absorbent materials, cat litter and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely.
(4) If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.
(5) If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

Significant/Hazardous Spills
For significant or hazardous spills that are in reportable quantities:

(1) Notify the TCEQ by telephone as soon as possible and within 24 hours at 512- 339-2929 (Austin) or 210-490-3096 (San Antonio) between 8 AM and 5 PM.

After hours, contact the Environmental Release Hotline at 1-800-832-8224. It is the contractor's responsibility to have all emergency phone numbers at the construction site.

(2) For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110,119, and 302, the contractor should notify the National Response Center at (800) 424-8802.

(3) Notification should first be made by telephone and followed up with a written report.

(4) The services of a spills contractor or a Haz-Mat team should be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staffs have arrived at the job site.

(5) Other agencies which may need to be consulted include, but are not limited to, the City Police Department, County Sheriff Office, Fire Departments, etc. More information on spill rules and appropriate responses is available on the TCEQ website at: https://www.tceq.texas.gov/response/spills

TEMPORARY STORMWATER SECTION
ATTACHMENT B

POTENTIAL SOURCES OF CONTAMINATION

Some potential sources of contamination are as follows:

- fuel storage and use,
- chemical storage and use,
- use of asphaltic products,
- construction vehicles tracking onto public roads,
- existing solid waste,
- and other vehicular contaminants (i.e., fuel, oil, lubricants, etc.).

Refer to Attachment A for Spill Response Actions.

TEMPORARY STORMWATER SECTION
ATTACHMENT C

SEQUENCE OF MAJOR ACTIVITIES

1. Construct temporary erosion control measures, including all silt fences, rock berms, diversion berms, and tree protection fencing per approved plan. (0.33 acres)

2. Conduct pre-construction conference with city inspector, water and wastewater utility representative, owner's representative, architect, engineer and contractor. Contact City of Georgetown permit center at (512) 930-2550 to schedule the pre-construction conference. An esc contact name and number will be provided to the city inspector for 24/7 access in the event of erosion and sediment control breach or related problem.(N/A)

3. Construction water quality pond, to act as temporary sedimentation basin. (1.67 acres)

4. Contractor shall contact City of Georgetown prior to utility abandonment at 512-930-3648, if appropriate. (N/A)

5. Perform clearing, demolition and rough grading. (37.08 acres)

6. Install utilities. Conduct water and wastewater utility construction and testing for city acceptance. Coordinate underground electric, telephone, cable tv, and telecommunications construction. Install inlet protection. (1.81 acres)

7. Construct all weather access drives including asphalt, base, concrete, and curb & gutter (as applicable). (8.1 acres)

8. Construct buildings. (4.71 acres)

9. Install all sidewalks. (0.07 acres)

10. Install streetscape and/or landscaping improvements. (0.33 acres)

11. Prior to city final acceptance, the contractor shall have vegetative cover in place in conformance with the general construction notes and landscape plan. All adjacent areas disturbed by the work will be repaired and revegetated by the general contractor to preexisting or better conditions. Permanent controls will be cleaned out and filter media will be installed prior to/concurrently with revegetation of site. (24.71 acres)

12. Schedule site final inspection with city environmental technician and city building inspector. (N/A)

13. Remove any trapped sediment at erosion control devices and upon approval of city inspector. Remove all temporary erosion controls and tree protection. (0.33 acres)

14. The total overall disturbed area for the Hanwha Texas Plant is approximately 37.08 acres.

TEMPORARY STORMWATER SECTION
ATTACHMENT D

TEMPORARY BEST MANAGEMENT PRACTICES AND MEASURES

At the beginning of the project, Temporary Best Management Practices (BMPs) will be installed according to the Erosion and Sedimentation Notes and Details sheet and placed as shown on the Erosion and Sedimentation Control Plan sheet. Silt fences will be installed and the proposed detention pond and water quality pond will be rough cut before construction begins. When full, the proposed detention pond overflow will sheet flow downstream through silt fence. During construction, the silt fencing and detention pond are to be inspected weekly, and after any rainfall.

The site is located 3546 N I-35, Georgetown Texas 78626. Upgradient water from the undeveloped site upstream of the proposed development will be conveyed to the proposed detention pond.

On-site Water

Silt fencing will be placed downwards along the boundary line of the tracts. Inlet protection will be placed as necessary to protect the existing inlet onsite. These Temporary BMPs will be installed along the down-gradient boundary of the property to filter all runoff that originates on site. The temporary construction entrance will be installed to prevent tracking materials offsite. Additionally, a concrete truck washout area will be placed onsite and be accessible to all existing traffic leaving the site. By this, the Temporary BMPs will prevent pollution of surface water that originates on-site due to the construction of the project.

The following sections were taken from the TNCC Manual, "Complying with Edward Aquifer
Rules: Technical Guidance on Best Management Practices."

- Construction Exit should be used at all designated access points.
- Silt Fence (interior) Areas of minor sheet flow. < ¼ acre/100 feet of fence < 20% slopes.
- Silt Fence (exterior) Down slope borders of site; up slope border is necessary to divert offsite drainage. For larger areas use diversion swale or berm. < ¼ acre/100 feet of fence < 20% slopes.
- Rock Berm Drainage swales and ditches with and below site. < 5 acres < 30% slopes.
- Inlet Protection Prevent sediment from entering storm drain system. < 1 acre.
- Spill Prevention Used on all sites to reduce spills.
- Concrete Washout Use on all concrete pouring operations.

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

1. The upgradient storm water will be directed to the previously mentioned temporary BMPs.

B. 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 storm water runoff from the site.

1. Silt fence and stabilized construction entrances shall be used to prevent pollution of surface water, groundwater or storm water that originates on-site or flows off-site by locating the TBMPs downstream of the flows leaving the site. The TBMPs will reduce the amount of contaminated runoff leaving the site by acting as a filter for sediment before the flows are released into the existing storm sewer system. Also included is a stabilized construction entrance to reduce the amount of mud tracked onto surrounding streets by construction vehicles. Inspection and maintenance of the on-site controls shall be performed during the site clearing and rough grading process.

   All TBMPs will be maintained by the Contractor as will be described in the Contractor's Storm water Pollution Prevention Plan (SWPPP). The initial installation of Erosion and Sedimentation Controls, will act as a sediment trap, and help to prevent pollution of surface waters from runoff originating on-site to the greatest extent practicable.

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

1. By locating the TBMPs downstream of the flows leaving the site, the TBMPs will reduce the amount of contaminated runoff leaving the site by acting as a filter for sediment before the flows are released. Also included is a stabilized construction entrance to reduce the amount of mud tracked onto surrounding streets by construction vehicles. Inspection and maintenance of the on-site controls shall be performed during the site clearing and rough grading process. All TBMPs will be maintained by the Contractor as will be described in the Contractor's SWPPP. The initial installation of Erosion and Sedimentation Controls, will act as a sediment trap, and help to prevent pollution of surface waters from runoff originating onsite to the greatest extent practicable.

D. 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.

Please refer to Erosion and Sedimentation Control Plan within the Construction plans.

TEMPORARY STORMWATER SECTION
ATTACHMENT E

REQUEST TO TEMPORARILY SEAL A FEATURE

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

TEMPORARY STORMWATER SECTION
ATTACHMENT F

STRUCTURAL PRACTICES

Structural practices will be used to limit runoff discharge of pollutants from exposed areas of the site. Silt fencing, triangular sediment filter dikes, inlet protection devices, and stabilized construction entrances will be incorporated as temporary erosion control devices and will be removed after the permanent stabilization is established.

Silt fencing shall be incorporated throughout the construction process. The placement of the silt fencing shall be perpendicular to runoff flow. Refer to project construction documents for quantity and actual locations of these erosion control devices. In areas where silt fencing is to be situated but is non-installable, triangular filter dikes shall be incorporated.

Stabilized construction entrances will be employed during the construction of this site to help minimize vehicle tracking of sediments. Paved streets adjacent to these site entrances shall be cleaned and/or swept regularly to remove any excess mud, dirt or rock tracked from the site. Refer to the project construction documents for actual locations of these erosion control devices. Staging areas will be utilized in locations as decided by the project general contractor and validated by the civil engineer. If the contractor determines the need for additional stabilized construction entrances, construction staging areas or pits, their locations shall be agreed upon by the contractor and the engineer and annotated in the Storm Water Pollution Prevention Plan (SWPPP) posted on the site during construction.

TEMPORARY STORMWATER SECTION
ATTACHMENT G

DRAINAGE AREA MAP

Please see the Construction Plans provided with this application for Existing and Proposed Drainage Area Maps, as well as details on the proposed methods for temporary erosion and sedimentation controls for the disturbed areas.

TEMPORARY STORMWATER SECTION
ATTACHMENT H

TEMPORARY SEDIMENT POND(S) PLANS AND CALCULATIONS

This section is not applicable for this project.

TEMPORARY STORMWATER SECTION
ATTACHMENT I

INSPECTION AND MAINTENANCE FOR BMPS

INSPECTIONS

Each contractor will designate a qualified person (or persons) to perform the following inspections:

1. Disturbed areas and areas used for storage of materials that are exposed to precipitation will be inspected for evidence of, or the potential for, pollutants entering the drainage system.

2. Erosion and sediment control measures identified in the plan will be observed to ensure that they are operating correctly.

3. Where discharge locations or points are accessible, they will be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.

4. Locations where vehicles enter or exit the site will be inspected for evidence of offsite sediment tracking.

The inspection shall be conducted by the responsible person at least once every seven (7) calendar days and within 24 hours after a storm providing 1/2 inches of rainfall or greater. If one or more of the following conditions apply, the frequency of inspections shall be conducted at least once every month:

1. The site has been temporarily stabilized.

2. Where runoff is unlikely due to winter conditions (i.e. site is covered with snow, ice, or where frozen ground exists.

3. During seasonal arid periods in arid areas (areas with an average annual rainfall of 0 to 10 inches) and semi-arid areas (areas with an average annual rainfall of 10 to 20 inches).

The information required within an inspection and maintenance report are as follows:

1. Summary of the scope of the inspection.

2. Name(s) and qualifications of personnel making the inspection.

3. The date(s) of the inspection.

4. Major observations relating to the implementation of the storm water pollution prevention plan.

5. Changes required to correct damages or deficiencies in the control measures.

In addition to the required routine inspections, the following record of information will also be maintained:

1. The dates when selective clearing activities occur.

2. The dates when selective clearing activities permanently cease on a portion of the site.

Inspection and maintenance reports, as well as all records required by a Storm Water Pollution Prevention Plan (SWPPP), shall be included in the onsite SWPPP as part of the Texas Pollution Discharge Elimination System (TPDES) Report. Copies of example forms to be used for the inspection and maintenance reports along with their related records, will be included in the onsite SWPPP and are provided for reference.

MAINTENANCE

Based on the results of the inspection, any changes required to correct damages or deficiencies in the control measures shall be made within seven (7) calendar days after the inspection. If existing erosion controls need modification or additional erosion controls are necessary, implementation shall be achieved prior to the next anticipated storm event. If, however, the execution of this requirement becomes impractical, then the implementation will occur as soon as possible, with the incident duly noted with an explanation of the impracticality, in the inspection report.

Sediment accumulation at each control will be removed and properly disposed when the depth of accumulation equals or exceeds six (6) inches. If sediment accumulation is found to be contaminated, its disposal shall be off-site in a manner which conforms to the appropriate applicable regulations.

INSPECTION AND MAINTENANCE GUIDELINES:

Silt Fence:

(1) Inspect all fencing weekly, and after any rainfall.
(2) Remove sediment when buildup reaches 6 inches.
(3) Replace any torn fabric or install a second line of fencing parallel to the torn section.
(4) Replace or repair any sections crushed or collapsed in the course of construction activity. If a section of fence is obstructing vehicular access, consider relocating it to a spot where it will provide equal protection, but will not obstruct vehicles. A triangular filter dike may be preferable to a silt fence at common vehicle access points.
(5) When construction is complete, the sediment should be disposed of in a manner that will not cause additional siltation and the prior location of the silt fence should be revegetated. The fence itself should be disposed of in an approved landfill.

Triangular Sediment Filter Dikes:

(1) Inspection should be made weekly or after each rainfall event and repair or replacement should be made promptly as needed by the contractor.
(2) Inspect and realign dikes as needed to prevent gaps between sections.
(3) Accumulated silt should be removed after each rainfall, and disposed of in a manner which will not cause additional siltation.
(4) After the site is completely stabilized, the dikes and any remaining silt should be removed. Silt should be disposed of in a manner that will not contribute to additional siltation.

Inlet Protection:

(1) Inspection should be made weekly and after each rainfall. Repair or replacement should be made promptly as needed by the contractor.
(2) Remove sediment when buildup reaches a depth of 3 inches. Removed sediment should be deposited in a suitable area and in such a manner that it will not erode.
(3) Check placement of device to prevent gaps between device and curb.
(4) Inspect filter fabric and patch or replace if torn or missing. 1-99
(5) Structures should be removed and the area stabilized only after the remaining drainage area has been properly stabilized.

Concrete Washout:

- Incorporate requirements for concrete waste management into material supplier and subcontractor agreements.
- Avoid mixing excess amounts of fresh concrete.
- Perform washout of concrete trucks in designated areas only.
- Do not wash out concrete trucks into storm drains, open ditches, streets, or streams.
- Do not allow excess concrete to be dumped onsite, except in designated areas.
- Locate washout area at least 50 feet from sensitive features, storm drains, open ditches, or water bodies. Do not allow runoff from this area by constructing a temporary pit or bermed area large enough for liquid and solid waste.
- Wash out wastes into the temporary pit where the concrete can set, be broken up, and then disposed properly.

Temporary Construction Entrance/Exit:

(1) The entrance should be maintained in a condition, which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment.
(2) All sediment spilled, dropped, washed or tracked onto public rights-of-way should be removed immediately by contractor.
(3) When necessary, wheels should be cleaned to remove sediment prior to entrance onto public right-of-way.
(4) When washing is required, it should be done on an area stabilized with crushed stone that drains into an approved sediment trap or sediment basin.

(5) All sediment should be prevented from entering any storm drain, ditch or water course by using approved methods.

HANWHA TEXAS PLANT
3546 N I-35
Georgetown, TX 78626

Inspection Report

Prevention Pollution Measure	Inspected in Compliance (Y/N)	Corrective Action Required: Description (use additional sheet if necessary)	Corrective Action Required: Date Completed
BEST MANAGEMENT PRACTICES			
Silt fences			
Rock berms			
Drain inlet protection			
Gravel filter bags			
Vehicle exits (offsite tracking)			
Concrete washout pit (leaks, failure)			
Temporary vegetation			
Permanent vegetation			
Sediment control basin			
Other structural controls			
Material storage areas (leakage)			
Equipment areas (leaks, spills)			
Construction debris			
General site cleanliness			
Trash receptacles			
Natural vegetation buffer strips			
EVIDENCE OF EROSION			
Site preparation			
Roadway or Parking Lot Construction			
Utility Construction			
Drainage Construction			
Building Construction			
MAJOR OBSERVATIONS			
Sediment discharges from site			
BMPs requiring maintenance			
BMPs requiring modification			
Additional BMPs required			

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Inspector's Name (Superintendent)	Inspector's Signature	Date
Hanwha Advanced Materials America LLC		5/13/2024
Name of Owner/Operator (Firm)	Authorized Signature	Date

Note: If there is a "NO" answer in the second column, the right columns will need to be completed and action is required within 7 days. Use additional sheets if necessary.

HANWHA TEXAS PLANT
3546 N I-35
Georgetown, TX 78626

Responsible Party Form and Schedule

Prevention Pollution Measure	**Responsible Party Company Name**										
	Start Date	Estimated Duration (Days)									
BEST MANAGEMENT PRACTICES											
Silt fences											
Rock berms											
Drain inlet protection											
Gravel filter bags											
Vehicle exits (offsite tracking)											
Concrete washout pit (leaks, failure)											
Temporary vegetation											
Permanent vegetation											
Sediment control basin											
Other structural controls											
Material storage areas (leakage)											
Equipment areas (leaks, spills)											
Construction debris											
General site cleanliness											
Trash receptacles											
Natural vegetation buffer strips											
Inspections											
SWP3 Modification & Records											
POTENTIAL EROSION SOURCES											
Clearing											
Grading											
Excavation											
Drainage Construction											
Utility Construction											
Roadway or Parking Lot Construction											
Foundation Construction											
Building Construction											
Landscaping Activities											
Identify responsible parties and indicate responsible party for each pollution prevention item listed above by marking an X under the Responsible Party Name.											

TEMPORARY STORMWATER SECTION
ATTACHMENT J

SCHEDULE OF INTERIM AND PERMANENT SOIL STABILIZATION PRACTICES

During Construction:

The methodology for handling pollution of on-site or up-gradient storm water during construction will include the following:

1. Silt fencing and rock berms will be used as a temporary erosion and sedimentation controls.

2. Stabilized construction entrances/exits will be put into place to reduce the dispersion of sediment from the site, and to aid in accessibility to the site.

3. A construction staging area will also be put into place for material stockpiles, machinery storage, and machinery maintenance.

4. Concrete truck washout pits will be put into place to prevent contamination of storm water runoff and to aid in the removal of sediments from the site.

5. As required by the TCEQ General Permit, disturbed areas on which construction activity has ceased (temporarily or permanently) and which will be exposed for more than 21 days shall be stabilized within 14 days. Areas receiving less than 20 inches of annual rainfall should be stabilized as soon as practicable and only to pre-project conditions.

6. If construction stops for more than 14 days, hydro-seeding, sod or other TCEQ approved method will be applied to re-stabilize vegetation.

After Construction:

This site will provide the following permanent pollution abatement measures to prevent the pollution of storm water originating on-site or upgradient from the project site:

1. Storm water will be directed to grate inlets via curbing and grading and discharged into the sedimentation/filtration basins. The sedimentation/ filtration basins have been designed to capture and filter the required runoff from the individual watersheds. The basin has been designed in accordance with the TCEQ Technical Guidance Manual. Each basin will be constructed as that particular phase is built.

2. Native grasses will be used on-site to help reduce the use of fertilizers and this will in turn reduce the levels of phosphates present in the storm water runoff.

3. Where possible drainage will be directed across vegetated areas to provide some pretreatment prior to discharge into the filtration basin.

Permanent Erosion Control:

1. All disturbed areas shall be restored as noted below:

   - A minimum of 4" of topsoil shall be placed in all drainage channels (except rock) and between the curb and R.O.W. property lines.

2. Broadcast Seeding:

   - From September 15 to March 1, seeding shall be with a combination of 2 pounds per 1,000 SF of unhulled Bermuda and 7 pounds per 1000 SF of Winter Rye with a purity of 95% with 90% germination.

   - From March 2 to September 14, seeding shall be with hulled Bermuda at a rate of 2 pounds per 1000 SF with a purity of 95% with 85% germination.

3. Fertilizer shall be a pelleted or granular slow release with an analysis of 15-15-15 to be applied once at planting and once during the period of establishment at a rate of 1 pound per 1,000 SF.

Seeding:

1) The seeding for permanent erosion control shall be applied over areas disturbed by construction as follows:

   a) From September 15 to March 1, seeding shall be with a combination of 2 pounds per 1,000 square feet of unhulled Bermuda and 7 pounds per 1,000 square feet of Winter rye with a purity of 95% with 90% germination.

   b) From March 2 to September 14, seeding shall be with hulled Bermuda at a rate of 3 pounds per 1,000 square feet with a purity of 95% with 85% germination.

2) Fertilizer shall be slow release granular or pelleted type and shall have an analysis of 15-15-15 and shall be applied at the rate of 23 pounds per acre, once at the time of planting and again once during the time of establishment.

3) The planted area shall be irrigated or sprinkled in a manner that will not erode the topsoil but will sufficiently soak the soil to a depth of six inches. The irrigation shall occur at ten-day intervals during the first two months. Rainfall

occurrences of an inch or more shall postpone the watering schedule for one week.

4) Mulch type used shall be Prairie hay, applied at a rate of 4,000 pounds per acre.

5) Restoration shall be acceptable when the grass has grown at least one inch high with 70% coverage, provided no bare spots larger that 18 square feet exist.

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VII.

PERMANENT STORMWATER SECTION (TCEQ-0600)

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: Matthew A. Dringenberg, P.E.

Date: 05/16/2024

Signature of Customer/Agent

Regulated Entity Name: Hanwha Texas Plant

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
ATTACHMENT A

20% OR LESS IMPERVIOUS COVER WAIVER

This Attachment is Not Applicable. Please refer to the site construction drawings provided with this application for information concerning the proposed permanent Best Management Practices (BMP's) on-site.

PERMANENT STORMWATER SECTION
ATTACHMENT B

BMPS FOR UPGRADIENT STORMWATER

No BMP's are required for upgradient stormwater runoff. Please refer to the site construction drawings for more information.

PERMANENT STORMWATER SECTION
ATTACHMENT C

BMPS FOR ON-SITE STORMWATER

Permanent Best Management Practices (BMPs) are proposed to prevent pollution of surface water that originates on-site, including pollution that originates from contaminated storm water runoff from the site. The BMPs will be in the form of a Batch Detention Pond designed to capture and treat storm water runoff produced on-site. Please refer to the site construction drawings for detailed calculations and more information.

PERMANENT STORMWATER SECTION
ATTACHMENT D

BMPS FOR SURFACE STREAMS

No BMP's are required for upgradient stormwater runoff. Please refer to the site construction drawings for more information.

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PERMANENT STORMWATER SECTION
ATTACHMENT E

REQUEST TO SEAL FEATURES

This section is not applicable for this project.

PERMANENT STORMWATER SECTION
ATTACHMENT F

Construction Plans

Please refer to the Hanwha Texas Plant construction plans provided with this application.

PERMANENT STORMWATER SECTION ATTACHMENT G:
INSPECTION SCHEDULE AND MAINTENANCE PLAN
PERMANENT BEST MANAGEMENT PRACTICE

PROJECT NAME: **Hanwha Texas Plant**
ADDRESS: **3546 IH 35 N**
CITY, STATE ZIP: **Georgetown, TX 78626**

Batch Detention Water Quality Ponds:

A clear requirement for Batch Detention is that a firm commitment be made to carry out both routine and non-routine maintenance tasks. The nature of the maintenance requirements are outlined below, along with design tips that can help to reduce the maintenance burden (modified from Young et al., 1996).

Routine Maintenance.

Mowing. The basin, basin side-slopes, and embankment of the basin must be mowed to prevent woody growth and control weeds. A mulching mower should be used, or the grass clippings should be caught and removed. Mowing should take place at least twice a year, or more frequently if vegetation exceeds 18 inches in height. More frequent mowing to maintain aesthetic appeal may be necessary in landscaped areas.
Inspections. Inspections should take place a minimum of twice a year. One inspection should take place during wet weather to determine if the basin is meeting the target detention time of 12 hours and a drawdown time of no more than 48 hours. The remaining inspections should occur between storm events so that manual operation of the valve and controller can be verified. The level sensor in the basin should be inspected and any debris or sediment in the area should be removed. The outlet structure and the trash screen should be inspected for signs of clogging. Debris and sediment should be removed from the orifice and outlet(s) as described in previous sections. Debris obstructing the valve should be removed. During each inspection, erosion areas inside and downstream of this BMP should be identified and repaired/revegetated immediately.
Debris and Litter Removal. Litter and debris removal should take place at least twice a year, as part of the periodic mowing operations and inspections. Debris and litter should be removed from the surface of the basin. Particular attention should be paid to floatable debris around the outlet structure. The outlet should be checked for possible clogging or obstructions and any debris removed.
Erosion Control. The basin side slopes and embankment all may periodically suffer from slumping and erosion. To correct these problems, corrective action, such as regrading and revegetation, may be necessary. Correction of erosion control should take place whenever required based on the periodic inspections.
Nuisance Control. Standing water or soggy conditions may occur in the basin. Some standing water may occur after a storm event since the valve may close with 2 to 3 inches of water in the basin. Some flow into the basin may also occur between storms due to spring flow and residential water use that enters the storm sewer system. Twice a year, the facility should be evaluated in terms of nuisance control (insects, weeds, odors, algae, etc.).

Non-routine maintenance.

Structural Repairs and Replacement. With each inspection, any damage to structural elements of the basin (pipes, concrete drainage structures, retaining walls, etc.) should be identified and repaired immediately. An example of this type of repair can include patching of cracked concrete, sealing of voids, removal of vegetation from cracks and joints. The various inlet/outlet structures in a basin will eventually deteriorate and must be replaced.
Sediment Removal. A properly designed batch detention basin will accumulate quantities of sediment over time. The accumulated sediment can detract from the appearance of the facility and reduce the pollutant removal performance of the facility. The sediment also tends to accumulate near the outlet structure and can interfere with the level sensor operation. Sediment shall be removed from the basin at least every 5 years, when sediment depth exceeds 6 inches, when the sediment interferes with the level sensor or when the basin does not drain within 48 hours. Care should be taken not to compromise the basin lining during maintenance.
Logic Controller. The Logic Controller should be inspected as part of the twice yearly investigations. Verify that the external indicators (active, cycle in progress) are operating properly by turning the controller off and on, and by initiating a cycle by triggering the level sensor in the basin. The valve should be manually opened and closed using the open/close switch to verify valve operation and to assist in inspecting the valve for debris. The solar panel should be inspected and any dust or debris on the panel should be carefully removed. The controller and all other circuitry and wiring should be inspected for signs of corrosion, damage from insects, water leaks, or other damage. At the end of the inspection, the controller should be reset.

Accumulated silt shall be properly disposed. Refer to Texas Natural Resource Conservation Commission (TNRCC) and the local government entity guidelines and specifications.
The responsible party understands that following any amendment(s) to the previously described inspection schedule and maintenance plan, a signed copy of the revised document will be submitted to the appropriate regional office of Texas Natural Resource Conservation Commission within thirty (30) days for review and approval. Also, if there are any changes

in the following information, a revised copy of this document will be submitted to appropriate regional office within 30 days.

Documenting Inspections: Inspection, maintenance, repairs, and retrofits performed per the above requirements must be documented and records thereof maintained with the WPAP.

The following format may be used to document the required maintenance:

Facility Name: Hanwha Texas Plant

Date of Inspection: _____

Reason of Inspection/Action: _____
(Monthly, Quarterly, Yearly, Rainfall, Other)

Sedimentation/Filtration Pond Conditions: _____

Detailed Description of Actions Taken: _____

The responsible party understands that following any amendment(s) to the previously described inspection schedule and maintenance plan, a signed copy of the revised document will be submitted to the appropriate regional office of Texas Natural Resource Conservation Commission within thirty (30) days for review and approval. Also, if there are any changes in the following information, a revised copy of this document will be submitted to appropriate regional office within 30 days.

Responsible Party: Jusun Lee
(Name Typed)

Entity: Hanwha Advanced Materials America LLC
Mailing Address: 3546 N IH 35 Service Road
City, State: Georgetown, TX Zip: 78626
Telephone: 810-701-9036
Fax:

_____ 5/13/2024
Signature of Responsible Party Date

PERMANENT STORMWATER SECTION
ATTACHMENT H

PILOT SCALE FIELD TESTING PLAN

This section is not applicable for this project.

PERMANENT STORMWATER SECTION
ATTACHMENT I

MEASURES FOR MINIMIZING SURFACE STREAM CONTAMINATION

The proposed improvements are not expected to change the way in which stormwater runoff enters nearby streams or affects stream flashing, in-stream velocities, and other in-stream effects.

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VIII.

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 Jusun Lee,
Print Name

CTO,
Title - Owner/President/Other

of Hanwha Advanced Materials America LLC,
Corporation/Partnership/Entity Name

have authorized Campbell Key, P.E. + Matthew A. Dringenberg, P.E.
Print Name of Agent/Engineer

of Southwest Engineers, 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

05/13/2024
Date

THE STATE OF AL §

County of Lee §

BEFORE ME, the undersigned authority, on this day personally appeared _____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 14 day of May, 2024.

NOTARY PUBLIC

Maritza Pozzi-Gamble
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 12/17/2025

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BUDA
205 CIMARRON PARK LOOP
BUDA, TX 78610
512-312-4336

IX.

APPLICATION FEE FORM
(TCEQ-0574)

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: Hanwha Texas Plant

Regulated Entity Location: 3546 N. IH 35 Service Rd, Georgetown, TX, 78626

Name of Customer: Jusun Lee (Hanwha Advanced Materials America LLC)

Contact Person: Matthew A. Dringenberg, P.E. Phone: (512)-312-4336

Customer Reference Number (if issued):CN _____

Regulated Entity Reference Number (if issued):RN 111871943

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	38.17 Acres	$ 6,500
Sewage Collection System	L.F.	$
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: 05/16/2024

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

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512-312-4336

X.

CHECK PAYABLE TO THE "TEXAS COMMISSION ON ENVIRONMENTAL QUALITY"

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512-312-4336

XI.

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 **Modification**

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number *(if issued)*
CN		RN 111871943

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy)

☒ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).

6. Customer Legal Name (*If an individual, print last name first: eg: Doe, John*) *If new Customer, enter previous Customer below:*

Hanwha Advanced Materials America LLC

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number (*if applicable*)
0805232854	32091653926		

11. Type of Customer: ☐ Corporation ☐ Individual Partnership: ☐ General ☐ Limited
Government: ☐ City ☐ County ☐ Federal ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees
☐ 0-20 ☐ 21-100 ☒ 101-250 ☐ 251-500 ☐ 501 and higher

13. Independently Owned and Operated?
☒ Yes ☐ No

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

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

15. Mailing Address:

3546 N. IH 35 Service Road							
City	Georgetown	**State**	TX	**ZIP**	78626	**ZIP + 4**	

16. Country Mailing Information (*if outside USA*)	17. E-Mail Address (*if applicable*)
	jay.lee@hanwhaus.com

18. Telephone Number	19. Extension or Code	20. Fax Number (*if applicable*)
(810) 701-9036		( ) -

SECTION III: Regulated Entity Information

21. 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

The Regulated Entity Name submitted may be updated in order to meet TCEQ Agency Data Standards (removal of organizational endings such as Inc, LP, or LLC).

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

Hanwha Texas Plant

23. Street Address of the Regulated Entity: ***(No PO Boxes)***	3546 N. IH 35 Service Road							
	City	Georgetown	**State**	TX	**ZIP**	78626	**ZIP + 4**	
24. County	Williamson							

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:	Located just north of IH 35 and SH 130 on the east side of IH 35, between Market Street and TX-195, adjacent to the Berry Springs RV Park.

26. Nearest City	**State**	**Nearest ZIP Code**
Georgetown	TX	78626

27. Latitude (N) In Decimal:	30.695833		**28. Longitude (W) In Decimal:**	-97.653256	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	41	44.9988	-97	39	11.721

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)
3714		332999	

33. What is the Primary Business of this entity? *(Do not repeat the SIC or NAICS description.)*

Manufacturing

34. Mailing Address:	**1102 South Rock Street**							
	City	**Georgetown**	**State**	**TX**	**ZIP**	**78626**	**ZIP + 4**	

35. E-Mail Address:	

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** ***(if applicable)***
(810) 701-9036		**( ) -**

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. See the Core Data Form instructions for additional guidance.

☐ Dam Safety	☐ Districts	☒ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Waste Water	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Matthew A. Dringenberg, P.E.	**41. Title:**	Buda Branch Manager

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(512) 312-4336		( ) -	matt.dringenberg@swengineers.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 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	Southwest Engineers, Inc.	**Job Title:**	Buda Branch Manager
Name *(In Print):*	Matthew A. Dringenberg, P.E.	**Phone:**	**(512)** 312- **4336**

Signature:		**Date:**	06.07.2024

Southwest Engineers

Civil | Environmental | Land Development

SOUTHWEST ENGINEERS, INC

205 CIMARRON PARK LOOP, SUITE B

BUDA, TX 78610

P: 512.312.4336 | F: 830.672.2034

www.swengineers.com | TBPE NO. F-1909

ENGINEER:
SOUTHWEST ENGINEERS, INC.
205 CIMARRON PARK LOOP, SUITE B
BUDA, TX 78610
CONTACT: MATTHEW A. DRINGENBERG, P.E.
PHONE: (512) 312-4336
EMAIL: MATT.DRINGENBERG@SWENGINEERS.COM

OWNER/DEVELOPER:
BERRY CREEK PARTNERS, LP
1102 SOUTH ROCK STREET
GEORGETOWN, TX 78626
CONTACT: JARRETT DOOLEY
PHONE: (512) 557-0420
EMAIL: JARRETT@HW-COMPANIES.COM

LANDSCAPE ARCHITECT:
CARRILLO DEAN LANDSCAPE ARCHITECTURE
7301 VIA CORRETO DR.,
AUSTIN, TX, 78749
CONTACT: RILEY ANDERSON
PHONE: (512)-535-7303

SURVEYOR:
LANDPOINT, LLC.
4100 INTERNATIONAL PLAZA, SUITE 240,
FORT WORTH, TX, 76109
CONTACT: TED A. GOSSETT, RPLS
PHONE: (817)-554-1805

STORM WATER PERMIT FOR HANWHA TEXAS PLANT

3546 IH 35 N.
GEORGETOWN, WILLIAMSON COUNTY, TEXAS 78626
APRIL 2024

SWE PROJECT # 1154-001

2023-26-SWP

FLOODPLAIN STATUS:
A PORTION OF THE PROPERTY LIES IN SHADED ZONE "A" AS SHOWN ON THE FEMA FIRM MAP PANEL NO. 48491C0285F, FOR WILLIAMSON COUNTY UNINCORPORATED AREAS, DATED DECEMBER 20, 2019

WATERSHED NOTE:
THIS PROJECT IS LOCATED IN THE BERRY CREEK WATERSHED.

LEGAL DESCRIPTION:
AW0051 - BERRY, J. SUR., ACRES 2.12 AND AW0051 BERRY, J. SUR ACRES 36.00

EDWARDS AQUIFER NOTE:
THIS PROJECT IS LOCATED WITHIN THE EDWARDS AQUIFER RECHARGE ZONE.

BENCHMARK:
PK NAIL SET IN ASPHALT AT SOUTHWEST EDGE OF STRIPE, SOUTH IH 35 FRONTAGE ROAD.
ELEVATION = 695.71'

PROPOSED USE:
PROPOSED USE - WAREHOUSING

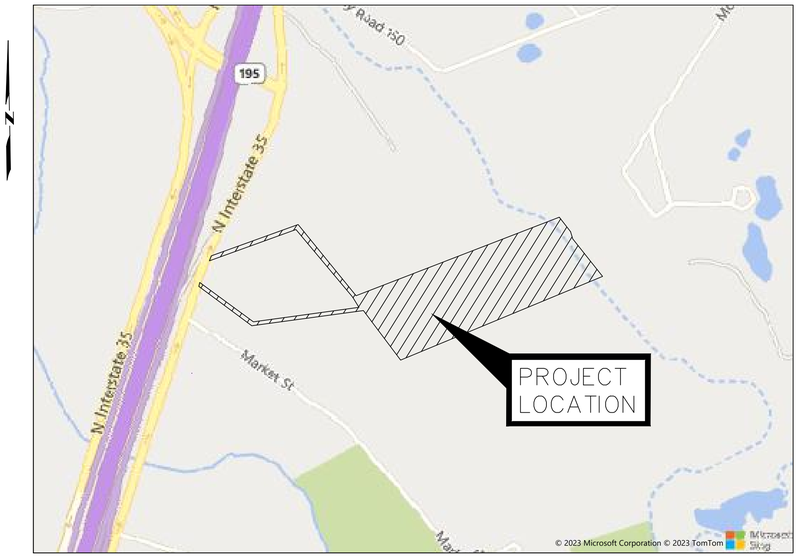
ITE 11th Trip Generation

ITE Land Use Code	Land Use	Size	Units	Daily Trips	AM Peak			PM Peak		
					Total	In	Out	Total	In	Out
150	Warehousing	532	1,000 Sq Ft	880	90	69	21	96	27	69
Total External Project Trips				**880**	**90**	**69**	**21**	**96**	**27**	**69**

NOTE: TRAFFIC CALCULATIONS PROVIDED ARE BASED ON FULL BUILD OUT OF SITE, ONLY PHASE 1 IS PROPOSED AT THIS TIME AS SHOWN WITHIN THESE PLAN SHEETS.

GENERAL NOTES

1. THESE PLANS WERE PREPARED, SEALED, SIGNED AND DATED BY A TEXAS LICENSED PROFESIONAL ENGINEER. THEREFORE, BASED ON THE ENGINEER'S CONCURRANCE OF COMPLIANCE, THE PLANS FOR THE CONSTRUCTION OF THE PROPOSED PROJECT ARE HEREBY APPROVED SUBJECT TO THE STANDARD CONSTRUCTION SPECIFICATIONS AND DETAILS MANUAL AND ALL OTHER APPLICABLE CITY, STATE AND FEDERAL REQUIREMENTS AND CODES.
2. THIS PROJECT IS SUBJECT TO ALL CITY STANDARD SPECIFICATIONS AND DETAILS IN EFFECT AT THE TIME OF SUBMITTAL OF THE PROJECT TO THE CITY.
3. THIS PROJECT IS SUBJECT TO THE WATER QUALITY REGULATIONS OF THE CITY OF GEORGETOWN.
4. WHRE NO EXISTING OVERHEAD INFRASTRUCTURE EXISTS, UNDERGROUND ELECTRICITY UTILITY LINES SHALL BE LOCATED ALONG THE STREET AND WITHIN THE SITE. WHERE EXISTING OVERHEAD INFRASTRUCTURE IS TO BE RELOCATED, IT SHALL BE REINSTALLED UNDERGROUND AND THE EXISTING FACILITIES SHALL BE REMOVED AT THE DISCRETION OF THE DEVELOPMENT ENGINEER.
5. ALL ELECTRIC AND COMMUNICATION INFRASTRUCTURE SHALL COMPLY WITH UDC SECTION 13.06.
   A. FOR RESIDENTIAL SUBDIVISIONS, ALL ELECTRIC DISTRIBUTION LINES AND INDIVIDUAL SERVICE LINES SHALL BE INSTALLED UNDERGROUND. IF OVERHEAD LINES EXISTED PRIOR TO UNDERGROUND INSTALLATION, SUCH POLES, GUY WIRES, AND RELATED STRUCTURES SHALL BE REMOVED FOLLOWING CONSTRUCTION OF THE UNDERGROUND INFRASTRUCTURE.
   B. FOR NON-RESIDENTIAL AND MULTI-FAMILY DEVELOPMENT WHERE NO EXISTING OVERHEAD INFRASTRUCTURE EXISTS, UNDERGROUND ELECTRIC UTILITY LINES SHALL BE REQUIRED ALONG THE STREET AND WITHIN THE SITE. WHERE EXISTING OVERHEAD INFRASTRUCTURE IS TO BE RELOCATED, IT SHALL BE RE-INSTALLED UNDERGROUND AND THE EXISTING FACILITIES SHALL BE REMOVED AT THE DISCRETION OF THE DEVELOPMENT ENGINEER. DEVELOPMENT OCCURRING IN THE DOWNTOWN OVERLAY DISTRICT SHOULD BE HIGHLY ENCOURAGED TO LOCATE OVERHEAD ELECTRIC UNDERGROUND WITH THE SITE WORK.
   C. UNDERGROUND ELECTRIC AND COMMUNICATION SERVICE LINES SHALL BE LOCATED AND INSTALLED ACCORDING TO THE CONSTRUCTION MANUAL.
   D. ELECTRIC TRANSFORMERS AND RELATED EQUIPMENT SHALL BE MOUNTED ON PADS AT GROUND LEVEL. FOR NON-RESIDENTIAL DEVELOPMENT, SUCH EQUIPMENT SHALL BE LOCATED OUTSIDE OF THE STREET YARD WHERE PRACTICAL AND PREFERABLY LOCATED BEHIND THE FRONT FAÇADE OF THE PRIMARY BUILDING STRUCTURE. SUCH EQUIPMENT SHALL BE REASONABLY SEPARATED FROM PEDESTRIAN OR VEHICULAR ACCESS WAYS, SHALL HAVE APPROVED DRIVEWAY OR ALL-WEATHER VEHICULAR ACCESSIBILITY, SHALL NOT CONFLICT WITH ROADWAY SIGHT VISIBILITY, AND SHALL BE LOCATED OUTSIDE OF FUTURE RIGHT-OF-WAY.
   E. SCREENING OF PAD-MOUNTED TRANSFORMERS FOR NON-RESIDENTIAL DEVELOPMENT SHALL CONSIST OF BARRIER FENCING OR SHRUB PLANTINGS LOCATED NO CLOSER THAN THREE FEET FROM THE TRANSFORMER, EXCEPT FOR THE ENTRY SIDE OF THE TRANSFORMER, WHICH SHALL HAVE A MINIMUM OF TEN FEET OF UNOBSTRUCTED CLEARANCE. THE ENTRY SIDE OF THE TRANSFORMER SHALL NOT FACE A PUBLIC STREET UNLESS LOCATED BEHIND THE FRONT FAÇADE OF THE PRIMARY BUILDING STRUCTURE. THE TRANSFORMER PAD SHALL BE LOCATED WITH ADEQUATE ROOM FOR THE REQUIRED LANDSCAPE SCREENING TO BE INSTALLED CONSISTENT WITH THESE PROVISIONS. TRANSFORMERS IN THE DOWNTOWN OVERLAY DISTRICT ARE EXEMPT FROM THESE REQUIREMENTS.
   F. ONCE UTILITY SERVICE LINES HAVE BEEN INSTALLED UNDERGROUND, THE INSTALLATION OF NEW ABOVE-GROUND LINES IN THAT LOCATION IS PROHIBITED.
   G. THE INSTALLATION OF PUBLIC STREET LIGHTS, AND CONNECTION OF ELECTRIC SERVICE THERETO, SHALL BE THE RESPONSIBILITY OF THE DEVELOPER AS PROVIDED IN CHAPTER 12 OF THIS CODE.
   H. INSTALLED OVERHEAD AND UNDERGROUND ELECTRIC SERVICE SHALL TAKE INTO ACCOUNT HERITAGE AND PROTECTED TREES WHEN LOCATING NEW SERVICE LINES.
   I. EXCEPTIONS OR ALTERNATIVES TO THE REQUIREMENTS OF THIS SECTION MAY BE CONSIDERED BY THE DEVELOPMENT ENGINEER OR THEIR DESIGNEE. AN APPEAL OF THE DECISION MADE BY THE DEVELOPMENT ENGINEER IN THIS REGARD SHALL BE HEARD BY THE CITY COUNCIL.
6. IT IS THE RESPONSIBILITY OF THE PROPERTY OWNER, AND SUCCESSORS TO THE CURRENT PROPERTY OWNER, TO ENSURE THE SUBJECT PROPERTY AND ANY IMPROVEMENTS ARE MAINTAINED IN CONFORMANCE WITH THIS SITE DEVELOPMENT PLAN.
7. THIS DEVELOPMENT SHALL COMPLY WITH ALL STANDARDS OF THE UNIFIED DEVELOPMENT CODE (UDC), CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND SPECIFICATIONS MANUAL, THE DEVELOPMENT MANUAL AND ALL OTHER APPLICABLE CITY STANDARDS.
8. THIS SITE DEVELOPMENT PLAN SHALL MEET THE UDC STORMWATER REQUIREMENTS.
9. ALL SIGNAGE REQUIRES A SEPARATE APPLICATION AND APPROVAL FROM THE INSPECTION SERVICES DEPARTMENT. NO SIGNAGE IS APPROVED WITH THE SITE DEVELOPMENT PLAN.
10. SIDEWALKS SHALL BE PROVIDED IN ACCORDANCE WITH THE UDC.
11. DRIVEWAYS WILL REQUIRE APPROVAL BY THE TEXAS DEPARTMENT OF TRANSPORTATION.
12. THE PROPERTY SUBJECT TO THIS APPLICATION IS SUBJECT TO THE WATER QUALITY REGULATIONS OF THE CITY OF GEORGETOWN.
13. A GEOLOGIC ASSESSMENT, IN ACCORDANCE WITH THE CITY OF GEORGETOWN WATER QUALITY REGULATIONS, WAS COMPLETED ON 06/22/2022. ANY SPRINGS AND STREAMS AS IDENTIFIED IN THE GEOLOGIC ASSESSMENT ARE SHOWN HEREIN.
14. THE COMPANION LANDSCAPE PLAN HAS BEEN DESIGNED AND PLANT MATERIALS SHALL BE INSTALLED TO MEET ALL REQUIREMENTS OF THE UDC.
15. ALL MAINTENANCE OF REQUIRED LANDSCAPE SHALL COMPLY WITH THE MAINTENANCE STANDARDS OF CHAPTER 8 OF THE UDC.
16. ANY HERITAGE TREE NOTED ON THIS SITE DEVELOPMENT PLAN IS SUBJECT, IN PERPETUITY, TO THE MAINTENANCE, CARE, PRUNING AND REMOVAL REQUIREMENTS OF THE UNIFIED DEVELOPMENT CODE.



LOCATION MAP

0 350 700 1400
HORIZONTAL SCALE: 1"=700'

EXISTING UTILITIES NOTES:

1. CONTRACTOR IS FULLY RESPONSIBLE FOR FIELD LOCATING ALL EXISTING UTILITIES, PRIVATE AND PUBLIC, WITHIN WORK AREA. NEITHER OWNER NOR ENGINEER HAS AS-BUILT INFORMATION FOR UNDERGROUND UTILITIES AND MAKES NO GUARANTEE AS TO THEIR LOCATION. CONTRACTOR WILL EMPLOY CONSTRUCTION METHODS NECESSARY TO ENSURE UNDERGROUND UTILITIES ARE NOT DAMAGED (IE. HAND DIGGING ETC.) THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES TO EXISTING UTILITIES, PRIVATE OR PUBLIC, AND SHALL REPAIR ANY UTILITIES DAMAGED TO THE OWNER'S SPECIFICATIONS AT NO COST TO HIM.
2. ACCORDING TO UDC 13.06.B. FOR ALL NONRESIDENTIAL DEVELOPMENT WHERE NO EXISTING OVERHEAD INFRASTRUCTURE EXISTS, UNDERGROUND ELECTRIC LINES SHALL BE REQUIRED ALONG THE STREET AND WITHIN THE SITE. WHERE EXISTING OVERHEAD LINES ARE TO BE RELOCATED, THEY SHALL BE RE-INSTALLED UNDERGROUND AND THE EXISTING FACILITIES SHALL BE REMOVED AT THE DISCRETION OF THE DEVELOPMENT ENGINEER. ALL ELECTRIC AND COMMUNICATION LINES MUST FOLLOW ALL REQUIREMENTS OF THE UDC 13.06.

CORRECTION / REVISION

NO.	DESCRIPTION	REVISE (R) ADD (A) VOID (V) SHEET NO.'S	TOTAL SHEETS IN PLAN SET	NET CHANGE IMP. COVER	SITE IMP. COVER	% SITE IMP. COVER	APPROVED DATE	IMAGED DATE
1C	REVISED DRIVEWAYS, DRIVE AISLES, PARKING AREAS, WATER SERVICE, POND, AND DRAINAGE CALCULATIONS	(R) 1,4,6-8,10-12,16-20, 22-31,35-37,40-46	46	-0.919 AC	12.81 AC	33.6%		
NO.	DESCRIPTION							

SHEET INDEX	
NO.	TITLE
1	COVER SHEET
2	SURVEY SHEET
3	EXISTING TOPOGRAPHIC AND TREE SURVEY (1 OF 4)
4	EXISTING TOPOGRAPHIC AND TREE SURVEY (2 OF 4)
5	EXISTING TOPOGRAPHIC AND TREE SURVEY (3 OF 4)
6	EXISTING TOPOGRAPHIC AND TREE SURVEY (4 OF 4)
7	TEMPORARY EROSION AND SEDIMENTATION CONTROL PLAN (1 OF 2)
8	TEMPORARY EROSION AND SEDIMENTATION CONTROL PLAN (2 OF 2)
9	EROSION AND SEDIMENTATION CONTROL DETAILS
10	EXISTING DRAINAGE AREA MAP
11	PROPOSED DRAINAGE AREA MAP
12	TxDOT DRIVEWAYS PLAN
13	TxDOT DETAILS (1 OF 3)
14	TxDOT DETAILS (2 OF 3)
15	TxDOT DETAILS (3 OF 3)
16	OVERALL SITE PLAN
17	DETAILED SITE AND DIMENSIONAL CONTROL PLAN (1 OF 4)
18	DETAILED SITE AND DIMENSIONAL CONTROL PLAN (2 OF 4)
19	DETAILED SITE AND DIMENSIONAL CONTROL PLAN (3 OF 4)
20	DETAILED SITE AND DIMENSIONAL CONTROL PLAN (4 OF 4)
21	SITE DETAILS
22	OVERALL GRADING PLAN
23	DETAILED GRADING PLAN (1 OF 4)
24	DETAILED GRADING PLAN (2 OF 4)
25	DETAILED GRADING PLAN (3 OF 4)
26	DETAILED GRADING PLAN (4 OF 4)
27	CHANNEL A
28	CHANNEL B
29	CHANNEL DETAILS
30	WATER QUALITY AND DETENTION POND PLAN
31	WATER QUALITY AND DETENTION POND DETAILS
32	POND CONTROL LOGIC DIAGRAM
33	POND CONTROL ALARM LOGIC DIAGRAM
34	POND LEVEL CONTROL ELEMENTARY DIAGRAM
35	WATER PLAN (1 OF 2)
36	WATER PLAN (2 OF 2)
37	WATER DETAILS
38	PRIVATE WASTEWATER PLAN
39	WASTEWATER DETAILS
40	LANDSCAPE OVERALL PLAN AND NOTES
41	LANDSCAPE PLAN (1 OF 4)
42	LANDSCAPE PLAN (2 OF 4)
43	LANDSCAPE (3 OF 4)
44	LANDSCAPE (4 OF 4)
45	LANDSCAPE TREE CALCULATIONS
46	LANDSCAPE SPECIFICATIONS

SUBMITTED BY: SOUTHWEST ENGINEERS, INC.
DATE: DECEMBER 15, 2023

REVIEWED FOR COMPLIANCE WITH COUNTY REQUIREMENTS:

FOR WILLIAMSON COUNTY

GEORGETOWN TEXAS more than welcome

Approved for construction by the City of Georgetown staff on:
04/09/2024

This SWP will expire 24 months from the date of approval if the applicable conditions of UDC Section 3.17.050 are not met.

4.9.2024

STATE OF TEXAS
MATTHEW A. DRINGENBERG
114250
LICENSED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY MATTHEW A. DRINGENBERG, PE #114250 ON THE DATE INDICATED. ANY ALTERATIONS OF THIS SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

TEXAS ONE CALL SYSTEM
811
UNDER PENALTY OF LAW, THE CONTRACTOR IS REQUIRED TO CONTACT THE TEXAS ONE CALL SYSTEM AT LEAST 48 HOURS BEFORE STARTING EXCAVATION.

NOTE: ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER WHO PREPARES THEM. IN APPROVING THESE PLANS, THE CITY OF AUSTIN MUST RELY UPON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER.

CAUTION - ELECTRICITY PRESENT

THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS THAT ENTER OR WORK ON THIS PROJECT ARE RESPONSIBLE FOR LOCATING, USING ONE-CALL OR THE ELECTRIC UTILITIES THEMSELVES, ALL OVERHEAD AND UNDERGROUND ELECTRICAL OF ANY NATURE AND FOR SAFEGUARDING ALL PERSONNEL ON THIS PROJECT, INCLUDING ANY OFF-SITE WORK AREAS SHOWN ON THE PLAN, FROM ANY INTERFERENCE WITH THE ELECTRIC LINES OR FROM DAMAGING, DIGGING UP OR UNCOVERING THE ELECTRIC LINES. GETTING A LADDER IN HARMS WAY OR ANY OTHER ACTIVITY OF ANY NATURE THAT COULD HARM ANY INDIVIDUAL IN ANY MANNER. THIS RESPONSIBILITY HEREBY REMOVES THE ENGINEER AND THE OWNER FROM ANY LIABILITY OF ANY NATURE.

Southwest Engineers
TBPE NO. F-1909
www.swengineers.com

HEADQUARTERS
307 Saint Lawrence Street, Gonzales TX 78629
P: 830.672.7546 F:830.672.2034

CENTRAL TEXAS
205 Cimarron Park Loop, Ste. B, Buda TX 78610
P: 512.312.4336

HANWA TEXAS PLANT

Southwest Engineers

SCHEDULE B ITEMS (FILE NO. 22-0733-C)

10. THE FOLLOWING MATTERS AND ALL TERMS OF THE DOCUMENTS CREATING OR OFFERING EVIDENCE OF THE MATTERS:

a. RIGHTS OF PARTIES IN POSSESSION. (OWNERS POLICY ONLY) THIS EXCEPTION MAY BE DELETED AT THE REQUEST OF THE PROPOSED INSURED, UPON A PHYSICAL INSPECTION BY THE TITLE COMPANY AND PAYMENT OF ITS REASONABLE AND ACTUAL COSTS THEREOF.

b. ALL LEASES, GRANTS, EXCEPTIONS OR RESERVATIONS OF COAL, LIGNITE, OIL, GAS AND OTHER MINERALS, TOGETHER WITH ALL RIGHTS, PRIVILEGES AND IMMUNITIES RELATING THERETO, APPEARING IN THE PUBLIC RECORDS WHETHER LISTED IN SCHEDULE B OR NOT. THERE MAY BE LEASES, GRANTS, EXCEPTIONS OR RESERVATIONS OF MINERAL INTEREST THAT ARE NOT LISTED.

c. INTENTIONALLY DELETED.

d. RIGHTS OF TENANTS IN POSSESSION UNDER UNRECORDED LEASES OR RENTAL AGREEMENTS.

e. INTENTIONALLY DELETED.

f. INTENTIONALLY DELETED.

g. INTENTIONALLY DELETED

h. THE LAND HAS FRONTAGE OR ABUTS INTERSTATE HIGHWAY NO. 35 WHICH IS A CONTROLLED ACCESS HIGHWAY. THIS POLICY DOES NOT INSURE AGAINST THE EXERCISE OF POWER BY COMPETENT GOVERNMENTAL AUTHORITY TO LIMIT, CONTROL OR DENY ACCESS, INGRESS OR EGRESS TO THE LAND FROM SAID HIGHWAY OR SERVICE ROD WHICH THE LAND ABUTS. NOR DOES IT INSURE THAT THE INSURED HAS OR SHALL CONTINUE TO HAVE ACCESS, INGRESS OR EGRESS FROM SUCH PROPERTY TO AND FORM SAID HIGHWAY AND SERVICE ROAD.

i. ANY ADVERSE CLAIM BASED UPON THE ASSERTION THAT:

a) SOME PORTION OF SAID LAND IS TIDE OR SUBMERGED LAND, OR HAS BEEN CREATED BY ARTIFICIAL MEANS OR HAS ACCRETED TO SUCH PORTION SO CREATED.

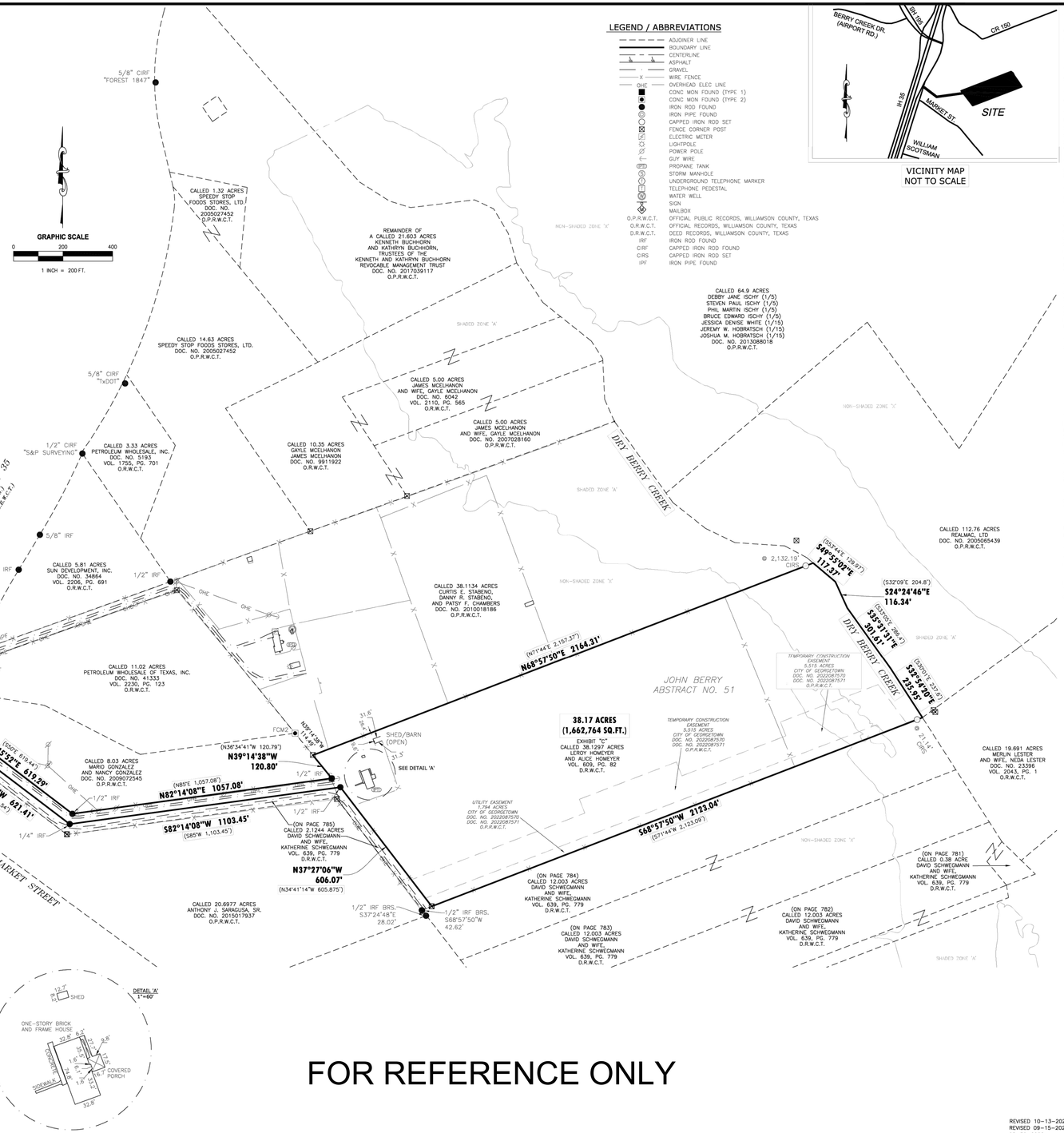
b) SOME PORTION OF SAID LAND HAS BEEN BROUGHT WITHIN THE BOUNDARIES THEREOF BY AVULSIVE MOVEMENT OF DRY BERRY CREEK OR HAS BEEN FORMED BY ACCRETION TO ANY SUCH PORTION.

j. NO LIABILITY IS ASSUMED OF THE LOCATION OF OVERHEAD ELECTRIC LINES, GUY WIRES, AND POWER POLES, WITHIN THE BOUNDARY OF SUBJECT PROPERTY AND BEING SITUATED OUTSIDE ANY DESIGNATED EASEMENT, TOGETHER WITH ALL EASEMENT RIGHTS APPURTENANT THERETO, AS SHOWN ON PRELIM SURVEY DATED JULY 19, 2022, PREPARED BY ROBERT GLEN MALOY, REGISTERED PROFESSIONAL LAND SURVEYOR, NO. 6028. (OTP ONLY)

k. NO LIABILITY IS ASSUMED BY REASON OF THE ENCROACHMENT AND/OR PROTRUSION OF FENCES INTO OR OUTSIDE THE BOUNDARY LINES OF SUBJECT PROPERTY, TOGETHER WITH ANY ASSERTION OF OWNERSHIP OF LAND LYING BETWEEN SAID FENCES AND THE BOUNDARY LINES OF SUBJECT PROPERTY, AS SHOWN ON PRELIM SURVEY DATED JULY 19, 2022, PREPARED BY ROBERT GLEN MALOY, REGISTERED PROFESSIONAL LAND SURVEYOR, NO. 6028. (OTP ONLY)

l. EASEMENT GRANTED TO CITY OF GEORGETOWN, RECORDED IN DOCUMENT NO. 2022087570, OF THE OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS. (AS TO TRACT I)

m. EASEMENT GRANTED TO CITY OF GEORGETOWN, RECORDED IN DOCUMENT NO. 2022087571, OF THE OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS. (AS TO TRACT I)



GENERAL NOTES

1. The surveyor has not abstracted the site. This survey relies on the title search from Old Republic National Title Insurance Company, GF No. 22-0733-C, effective date August 31, 2022, issue date of September 9, 2022.

2. Bearing based on Texas State Plane Coordinates, Central Zone, 4203, NAD83-US Survey feet, derived from GPS observations.

3. All "CIRS" are 5/8-inch iron rod with plastic cap stamped "Landpoint" unless otherwise noted.

4. This original work is protected under copyright laws, Title 17 United States Code Sections 101 and 102. All violators will be prosecuted to the fullest extent of the law. This survey is being provided solely for the use of the recipients named and no license has been created, express or implied, to copy the survey except as is necessary in conjunction with the original transaction, which shall take place within thirty (30) days from the date adjacent to the signature line herein.

5. Flood Statement: This site is situated in Non-shaded Zone "X" and Shaded Zone "A" in The City of Georgetown, Williamson County, Texas according to FEMA map number 48491C0285F, dated DECEMBER 20, 2019. Warning: This statement does not imply that the property and/or the structures thereon will be free from flooding or flood damage. This determination has been made by scaling the property on the referenced map and is not the result of an elevation survey. This flood statement shall not create liability on the part of the surveyor.

FOR REFERENCE ONLY

LEGAL DESCRIPTION

BEING all that certain tract or parcel of land situated in the John Berry Survey, Abstract Number 51, in Williamson County, Texas, and being that certain called 38.1297 acre tract of land described in Exhibit "C" by Decree Confirming Partition to Leroy Homeyer and Alice Homeyer, recorded in Volume 609, Page 82, Deed Records, Williamson County, Texas, and being more particularly described by metes and bounds as follows:

BEGINNING at a TxDOT Type I concrete monument found for the exterior Northwest corner of said Homeyer 38.1297 acre tract of land, and being the westernmost corner of that certain called 8.03 acre tract of land described by deed to Mario Gonzalez and Nancy Gonzalez, recorded in Document Number 2009072545, Official Public Records, Williamson County, Texas, from which a 1/2-inch iron rod found for the Northwest corner of said 8.03 acre tract of land, and being the westernmost corner of that certain called 11.02 acre tract of land described by deed to Petroleum Wholesale of Texas, Inc., recorded in Document Number 41333, Volume 2230, Page 123, Official Records, Williamson County, Texas, bears an arc length of 123.57 feet along a tangential curve to the right, having a radius of 2,814.80 feet, a central angle of 02°30'55", and a long chord which bears N18°45'30"E, a chord distance of 123.56 feet, and being in the easterly right-of-way line of Interstate Highway 35 (IH-35) (variable width right-of-way), as described by deed to the State of Texas, recorded in Volume 454, Page 50, Deed Records, Williamson County, Texas;

THENCE South 52°45'52" East, with a northerly line of said Homeyer 38.1297 acre tract of land and the southerly line of said 8.03 acre tract of land, a distance of 619.29 feet to a 1/2-inch iron rod found for angle point;

THENCE North 82°14'08" East, continuing with a northerly line of said Homeyer 38.1297 acre tract of land and the southerly line of said 8.03 acre tract of land, a distance of 1,057.08 feet to a 1/2-inch iron rod found for the easternmost corner of said 8.03 acre tract of land;

THENCE North 39°14'38" West, with the westerly line of said Homeyer 38.1297 acre tract of land and the easterly line of said 8.03 acre tract of land, a distance of 120.80 feet to a fence corner post found for the interior Northwest corner of said Homeyer 38.1297 acre tract of land, and being the Southwest corner of that certain called 38.1134 acre tract of land described by Special Warranty Deed to Curtis E. Stabeno, Danny R. Stabeno, and Patsy F. Chambers, recorded in Document Number 2010018186, Official Public Records, Williamson County, Texas, from which a concrete monument found for the Northeast corner of said 8.03 acre tract of land and the Southeast corner of said 11.02 acre tract of land bears North 39°14'38" West, a distance of 114.49 feet;

THENCE North 68°57'50" East, with the northerly line of said Homeyer 38.1297 acre tract of land and the southerly line of said Stabeno 38.1134 acre tract of land, passing at a distance of 2,132.19 feet, a 5/8-inch iron rod with plastic cap stamped "Landpoint" (hereinafter referred to as a capped iron rod) set for reference, and continuing on said course a total distance of 2,164.31 feet to the approximate centerline of Dry Berry Creek for the Northeast corner of said Homeyer 38.1297 acre tract of land and the Southeast corner of said Stabeno 38.1134 acre tract of land;

THENCE with the approximate centerline of said creek, the following Four (4) courses and distances:

1. South 49°55'02" East, a distance of 117.37 feet;
2. South 24°24'46" East, a distance of 116.34 feet;
3. South 35°31'31" East, a distance of 301.61 feet;
4. South 32°54'20" East, a distance of 235.95 feet to the Southeast corner of said Homeyer 38.1297 acre tract of land, and being the Northeast corner of that certain called 12.003 acre tract of land described by deed to David Schwegmann and wife, Katherine Schwegmann, recorded in Volume 639, Page 779, Deed Records, Williamson County, Texas;

THENCE South 68°57'50" West, with the southerly line of said Homeyer 38.1297 acre tract of land, and the northerly line of said 12.003 acre tract of land, passing at a distance of 21.14 feet, a capped iron rod set for reference, and continuing on said course for a total distance of 2,123.04 feet to the Southeast corner of that certain called 2.1244 acre tract of land described by said Schwegmann deed, from which a 1/2-inch iron rod found for the Southwest corner of said 2.1244 acre tract of land bears South 68°57'50" West, a distance of 42.62 feet;

THENCE North 37°27'06" West, with the westerly line of said Homeyer 38.1297 acre tract of land and the easterly line of said 2.1244 acre tract of land, a distance of 606.07 feet to a 1/2-inch iron rod found for angle point;

THENCE South 82°14'08" West, with a southerly line of said Homeyer 38.1297 acre tract of land and the northerly line of said 2.1244 acre tract of land, a distance of 1,103.45 feet to a 1/4-inch iron rod found for angle point;

THENCE North 52°45'52" West, continuing with a southerly line of said Homeyer 38.1297 acre tract of land and the northerly line of said 2.1244 acre tract of land, a distance of 621.41 feet to a 1/2-inch iron rod found for corner being in the easterly right-of-way line of said IH-35;

THENCE North 17°28'05" East, with the easterly right-of-way line of said IH-35, a distance of 42.51 feet to the POINT OF BEGINNING and containing 38.17 acres (1,662,764 sq.ft.) of land, more or less.

NOTE: The Company is prohibited from insuring the area or quantity of the land described herein. Therefore, the Company does not represent that the acreage or square footage calculations are correct. References to quantity are for informational purposes only.

ALTA/NSPS TITLE SURVEY
OF
38.17 ACRES (1,662,764 SQ.FT.)
SITUATED IN
THE JOHN BERRY SURVEY, ABSTRACT NO. 51,
CITY OF GEORGETOWN
WILLIAMSON COUNTY, TEXAS

CERTIFICATION: Berry Creek Partners, LP; Joyce E. Homeyer Hoelck, Roylene M. Homeyer Robbins, Fred A. Homeyer, Gregory Don Homeyer aka Don Homeyer, Individually and as Trustee of the Homeyer Living Trust, dated July 9, 2007; Old Republic National Title Insurance Company

I, Ted Allen Gossett, certify that this plat was prepared under my direct supervision from a survey made on the ground on June 7, 2022 that this plat correctly represents the facts found at the time of said survey and that this professional service was made in accordance with the "2021 Minimum Standard Detail Requirements for ALTA/ASCM Land Title Surveys", jointly established and adopted by ALTA and NSPS, and includes Items 1, 3, 4, 6, 7(a), 7(b1), 8, 9, 11(a), 13, 14, 16, 17 & 18 of Table A thereof.

10-13-2022

Ted A. Gossett
Registered Professional Land Surveyor
Texas Registration No. 5991

OWNER	FIELD BOOK N/A
Joyce E. Homeyer Hoelck, Roylene M. Homeyer Robbins, Fred A. Homeyer, Gregory Don Homeyer aka Don Homeyer, Individually and as Trustee of the Homeyer Living Trust, dated July 9,	FIELD WORK TM
	DATE 06/07/2022
	DRAFTING BF
PURCHASER	DATE 06/15/2022
Berry Creek Partners, LP;	CHECKED SB
	DATE 08/12/2022
	MTGE. CO. N/A
ADDRESS	TITLE CO. OLD REPUBLIC NATIONAL
3546 S IH 35 SERVICE RD GEORGETOWN, TX 78626	G.F. NO. 22-0733-C
	SCALE 1"=200'
	KEY MAP N/A
	JOB. NO. 22-1123-1

LANDPOINT
4100 INTERNATIONAL PLAZA, STE. 240
FORT WORTH, TX 76109
(817) 554-1805
www.landpoint.net
TBPELS REG. NO. 10194220

SHEET 1 OF 1

REVISED 10-13-2022
REVISED 09-15-2022
08-30-2022

NO.	REVISION	DATE

Southwest Engineers
TBPE NO. F-1909
www.swengineers.com

HEADQUARTERS
307 Saint Lawrence Street, Gonzales TX 78629
P: 830.672.7546 F:830.672.2034

CENTRAL TEXAS
205 Cimarron Park Loop, Ste. B, Buda TX 78610
P: 512.312.4336

WARNING
IF THIS BAR DOES NOT MEASURE 1", THE DRAWING IS NOT TO SCALE

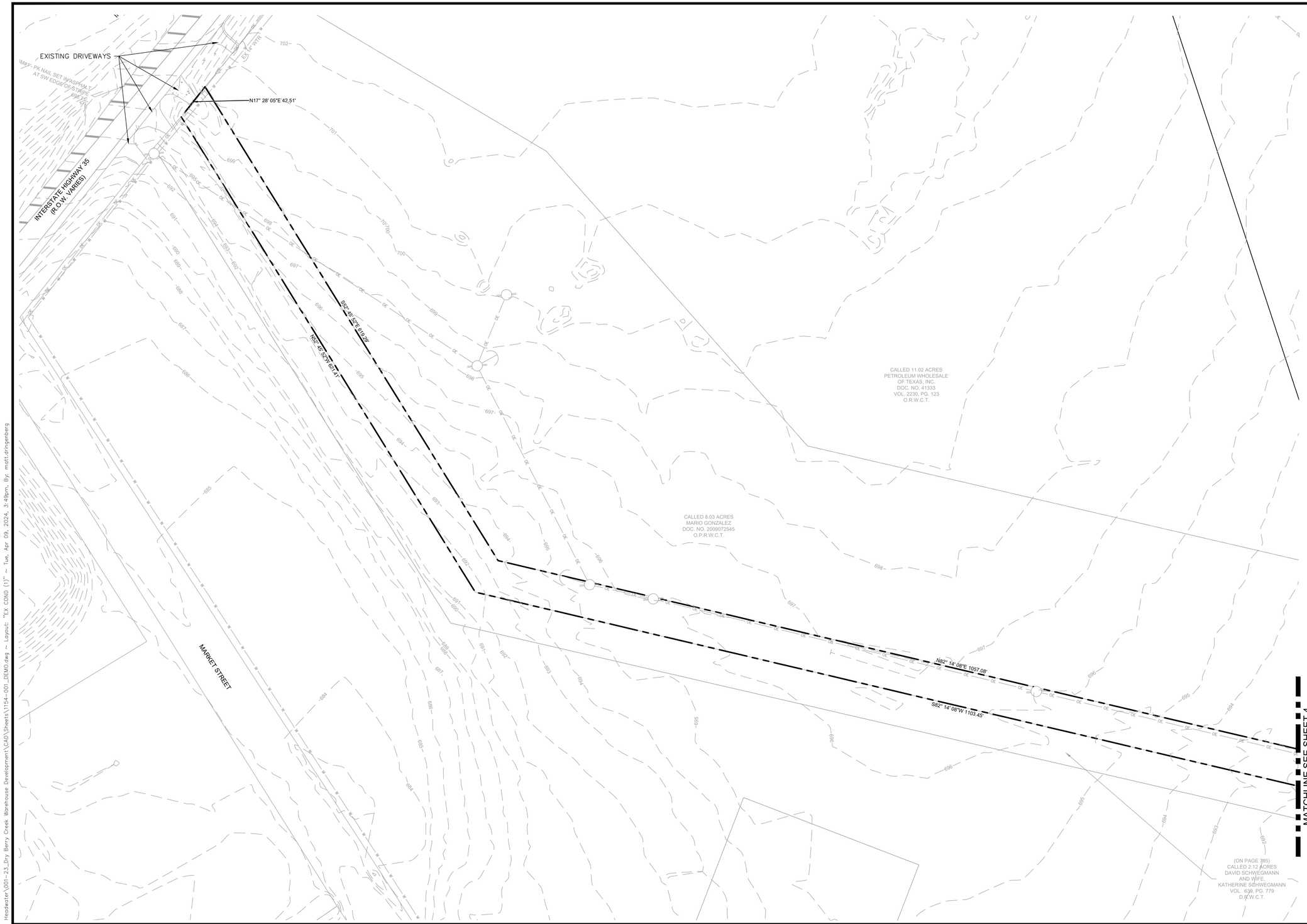
DRAWN BY: T.J.B.
CHECKED BY: A.C.K

SURVEY SHEET

HANWHA TEXAS PLANT
3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001
DRAWING NO.
SHEET 2 OF 46

O:\Company\Data\Clients\1154 - Headwater\001-23_Dry Berry Creek Warehouse Development\CAD\Sheets\1154-001_SURVEY.dwg -- Layout: "SURVEY" -- Tue, Apr 09, 2024, 3:49pm, By: matt.dringenberg



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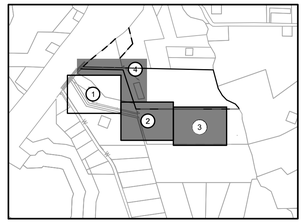
HORIZONTAL SCALE: 1"=50'

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- DRAINAGE FLOW DIRECTION
- SF SF SILT FENCE
- LOC LOC LIMIT OF CONSTRUCTION
- STABILIZED CONSTRUCTION ENTRANCE
- TREE TO BE KEPT
- PROTECTED TREE TO BE KEPT
- HERITAGE TREE TO BE KEPT
- PROTECTED TREE TO BE REMOVED
- HERITAGE TREE TO BE REMOVED



KEY MAP
N.T.S.

TEXAS ONE CALL SYSTEM
1-800-245-4545

UNDER PENALTY OF LAW, THE CONTRACTOR IS REQUIRED TO CONTACT THE TEXAS ONE CALL SYSTEM AT LEAST 48 HOURS BEFORE STARTING EXCAVATION.

CAUTION - ELECTRICITY PRESENT

THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS THAT ENTER OR WORK ON THIS PROJECT ARE RESPONSIBLE FOR LOCATING, USING ONE-CALL OR THE ELECTRIC UTILITIES THEMSELVES, ALL OVERHEAD AND UNDERGROUND ELECTRICAL OF ANY NATURE AND FOR SAFEGUARDING ALL PERSONNEL ON THIS PROJECT, INCLUDING ANY OFF-SITE WORK AREAS SHOWN ON THE PLAN, FROM ANY INTERFERENCE WITH THE ELECTRIC LINES OR FROM DAMAGING, DIGGING UP OR UNCOVERING THE ELECTRIC LINES. GETTING A LADDER IN HARMS WAY OR ANY OTHER ACTIVITY OF ANY NATURE THAT COULD HARM ANY INDIVIDUAL IN ANY MANNER. THIS RESPONSIBILITY HEREBY REMOVES THE ENGINEER AND THE OWNER FROM ANY LIABILITY OF ANY NATURE.

NO.	REVISION	DATE

4.9.2024

STATE OF TEXAS
MATTHEW A. DRINGENBERG
114250
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY MATTHEW A. DRINGENBERG, PE #114250 ON THE DATE INDICATED. ANY ALTERATIONS OF THIS SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

Southwest Engineers
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www.swengineers.com

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P: 830.672.7546 F:830.672.2034

CENTRAL TEXAS
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P: 512.312.4336

WARNING
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DRAWN BY: T.J.B.

CHECKED BY: A.C.K

EXISTING TOPOGRAPHIC AND TREE SURVEY (1 OF 4)

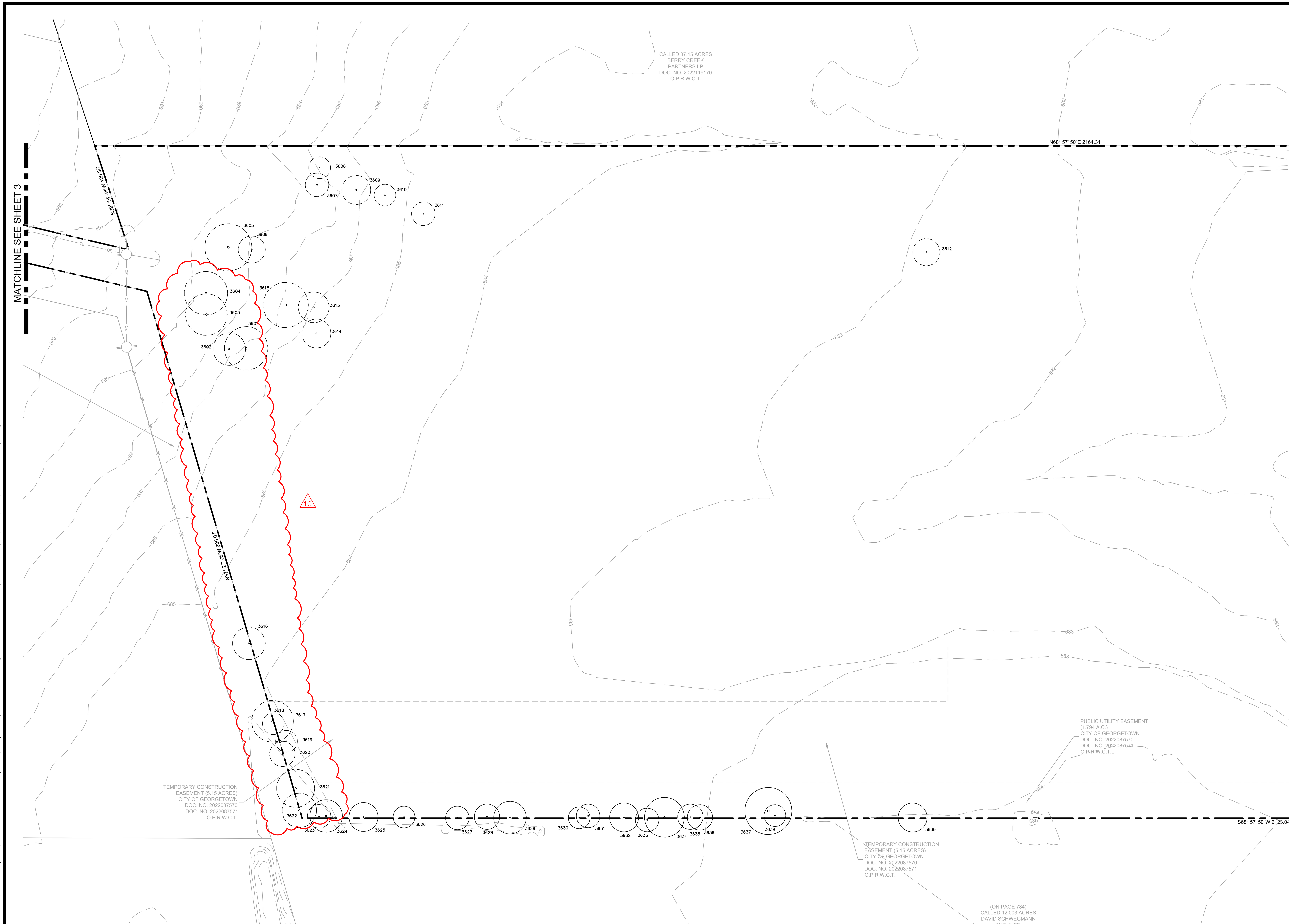
HANWHA TEXAS PLANT

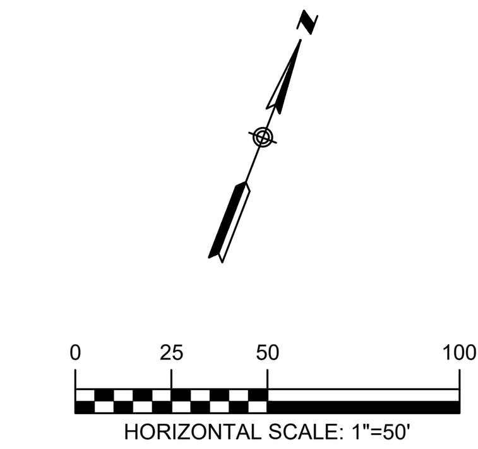
3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001

DRAWING NO.

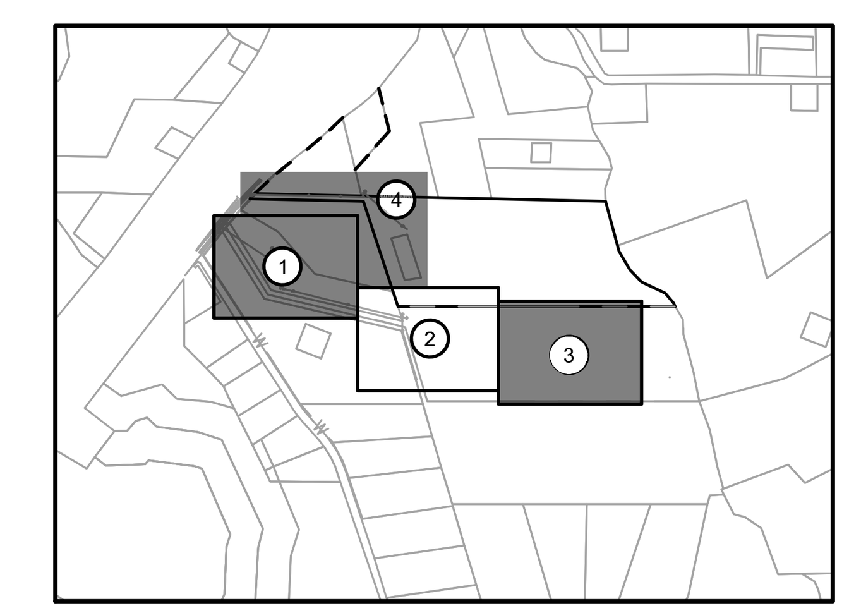
SHEET 3 OF 46





LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- DRAINAGE FLOW DIRECTION
- SILT FENCE
- LIMIT OF CONSTRUCTION
- STABILIZED CONSTRUCTION ENTRANCE
- TREE TO BE KEPT
- PROTECTED TREE TO BE KEPT
- HERITAGE TREE TO BE KEPT
- PROTECTED TREE TO BE REMOVED
- HERITAGE TREE TO BE REMOVED



KEY MAP
N.T.S.

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NO.	REVISION	DATE
1C	TREES TO BE REMOVED	05/22/24

5.22.2024
STATE OF TEXAS — MATTHEW A. DRINGENBERG — 114250 — LICENSED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY MATTHEW A. DRINGENBERG, PE #114250 ON THE DATE INDICATED. ANY ALTERATIONS OF THIS SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

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CENTRAL TEXAS
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P: 512.312.4336

WARNING
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DRAWN BY: T.J.B.
CHECKED BY: A.C.K

EXISTING TOPOGRAPHIC AND TREE SURVEY (2 OF 4)

HANWHA TEXAS PLANT

3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001
DRAWING NO.
SHEET 4 OF 46

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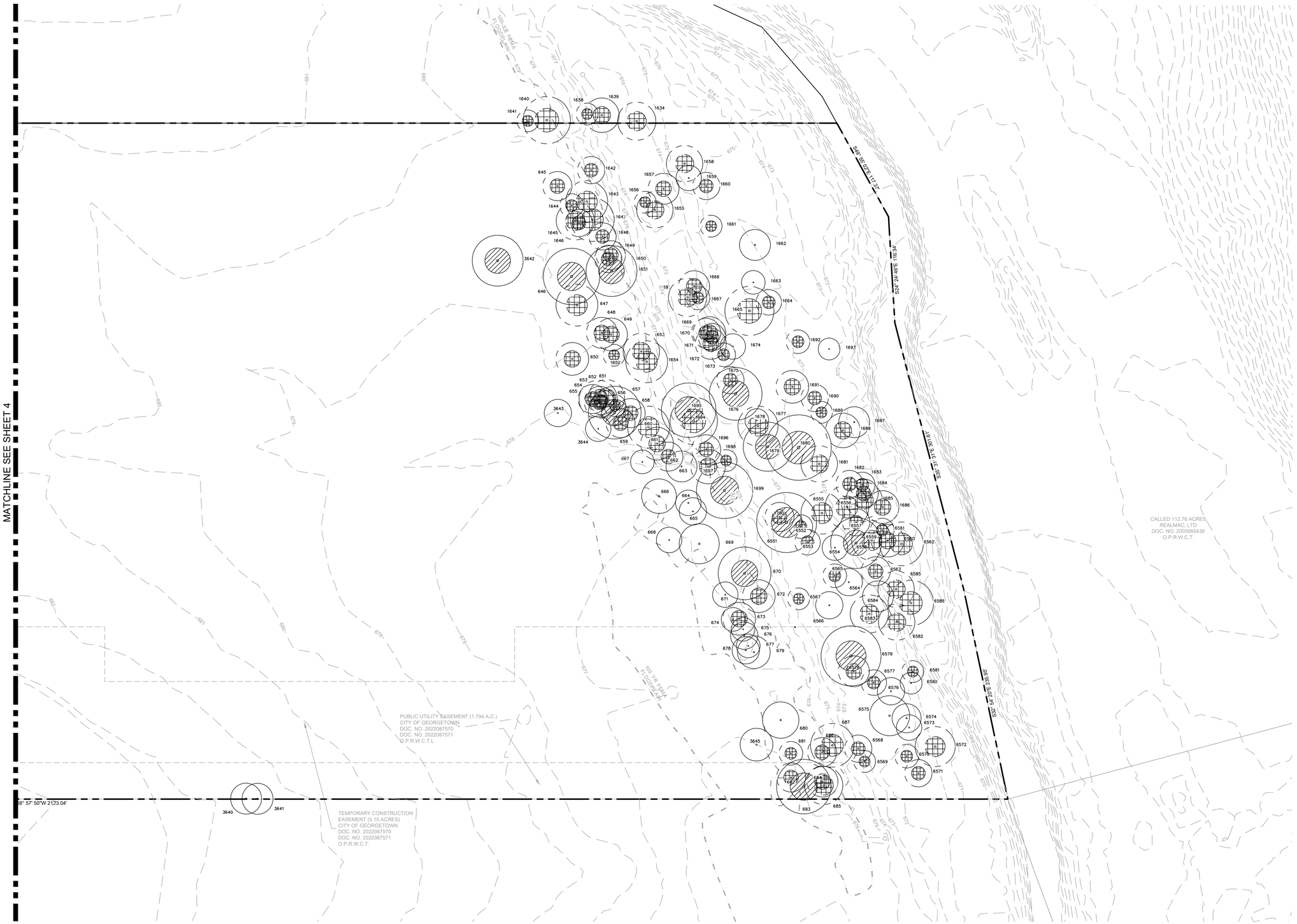
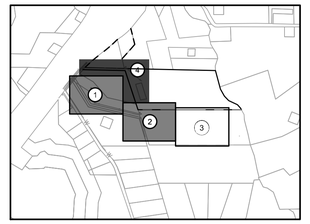
MATCHLINE SEE SHEET 4



0 25 50 100
HORIZONTAL SCALE: 1"=50'

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- DRAINAGE FLOW DIRECTION
- SILT FENCE
- LIMIT OF CONSTRUCTION
- STABILIZED CONSTRUCTION ENTRANCE
- TREE TO BE KEPT
- PROTECTED TREE TO BE KEPT
- HERITAGE TREE TO BE KEPT
- PROTECTED TREE TO BE REMOVED
- HERITAGE TREE TO BE REMOVED



KEY MAP
N.T.S.

TEXAS ONE CALL SYSTEM
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NO.	REVISION	DATE

4.9.2024

STATE OF TEXAS
MATTHEW A. DRINGENBERG
114250
LICENSED
PROFESSIONAL ENGINEER

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WARNING
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DRAWN BY: T.J.B.

CHECKED BY: A.C.K

EXISTING TOPOGRAPHIC AND TREE SURVEY (3 OF 4)

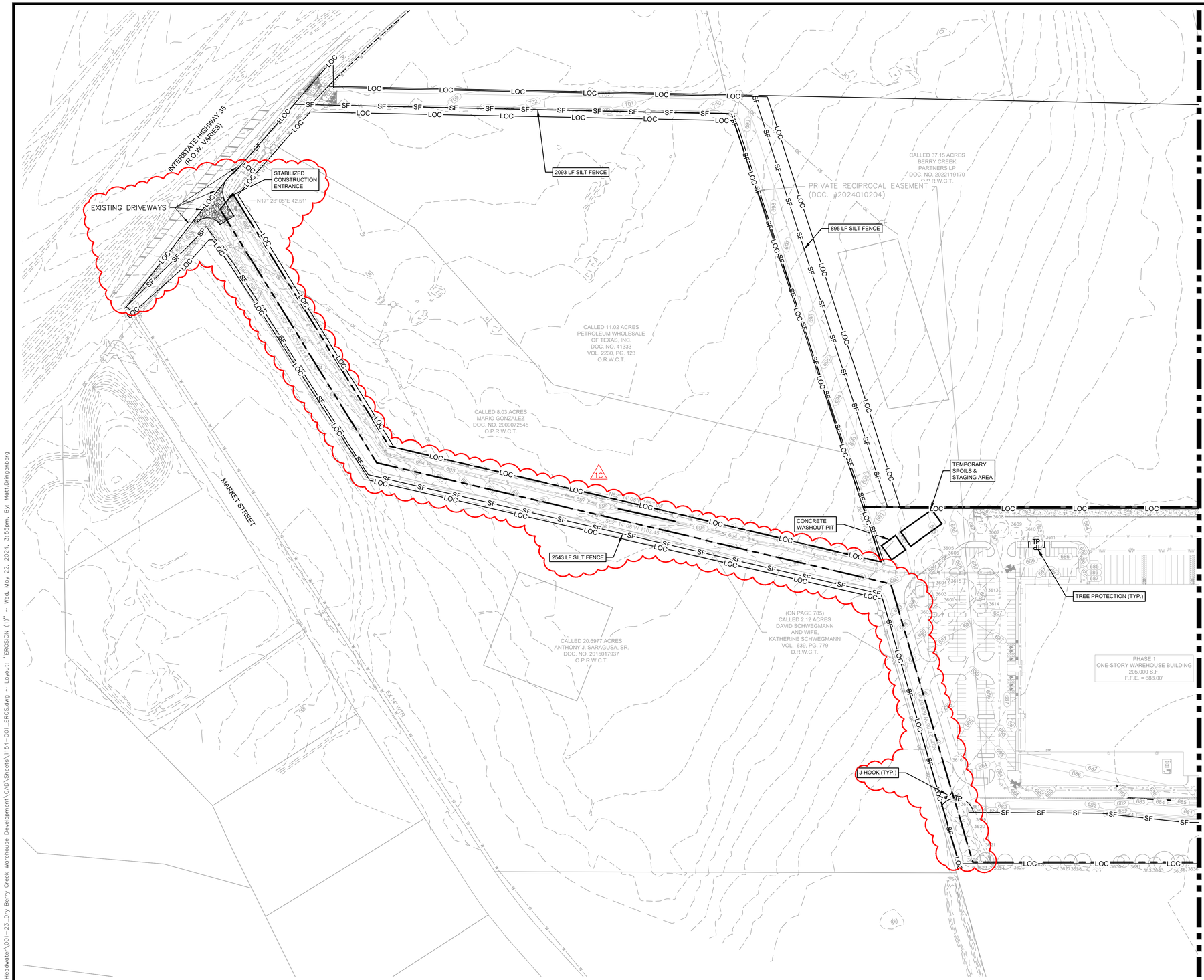
HANWHA TEXAS PLANT

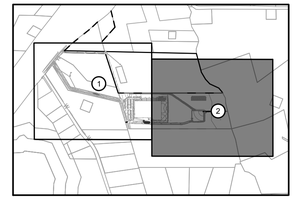
3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001

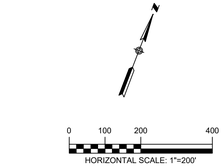
DRAWING NO.

SHEET 5 OF 46





KEY MAP
N.T.S.



LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- DRAINAGE FLOW DIRECTION
- SILT FENCE
- LIMIT OF CONSTRUCTION
- STABILIZED CONSTRUCTION ENTRANCE
- SEPTIC FIELD
- TREE TO BE KEPT
- PROTECTED TREE TO BE KEPT
- HERITAGE TREE TO BE KEPT
- PROTECTED TREE TO BE REMOVED

NOTES

1) CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DISTURBED AREAS ON WHICH CONSTRUCTION ACTIVITIES HAVE CEASED (TEMPORARILY OR PERMANENT) AND SHALL BE STABILIZED WITHIN 14 DAYS UNLESS ACTIVITY RESUMES IN 21 DAYS, PER TPDES REQUIREMENTS.
2) CONSTRUCTION ACTIVITY AND ACCESS TO THE PROPERTY FOR CONSTRUCTION PURPOSES IS LIMITED TO THE BOUNDARY OF THE LIMITS OF CONSTRUCTION.

SEQUENCE OF CONSTRUCTION

1. INSTALL EROSION CONTROLS PER APPROVED PLAN.
2. TEMPORARY CONTROLS TO BE INSPECTED AND MAINTAINED WEEKLY AND PRIOR TO ANTICIPATED RAINFALL EVENTS, AND AFTER RAINFALL EVENTS, AS NEEDED. CONTRACTOR/OWNER SHALL PROVIDE A CONTACT NAME AND NUMBER FOR EROSION CONTROL ISSUES.
3. CONDUCT DEMOLITION ACTIVITIES, IF APPLICABLE.
4. CONSTRUCT DRAINAGE IMPROVEMENTS, IF APPLICABLE.
5. CONSTRUCT CURB INLET PROTECTION AT THE TIME OF CURB INLET INSTALLATION,IF APPLICABLE.
6. CONSTRUCT DEVELOPMENT PER APPROVED PLANS.
7. INSTALL STREETSCAPE AND/OR LANDSCAPING IMPROVEMENTS.
8. CONTRACTOR TO VEGETATE ANY DISTURBED AREAS ONCE FINAL GRADING IS COMPLETE, AND ESTABLISH A MIN OF 70% VEGETATION PRIOR TO COMPLETION. PER TPDES REQUIREMENTS, DISTURBED AREAS ON WHICH CONSTRUCTION ACTIVITIES HAVE CEASED (TEMPORARILY OR PERMANENTLY) SHALL BE STABILIZED WITHIN 14 DAYS UNLESS ACTIVITY RESUMES WITHIN 21 DAYS. SEEDING DOES NOT CONSTITUTE AS STABILIZATION.
9. REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.

1C

LIMITS OF CONSTRUCTION:

± 1,615,043 SF = ± 37.08 AC

TEXAS ONE CALL SYSTEM
1-800-245-4545

UNDER PENALTY OF LAW, THE CONTRACTOR IS REQUIRED TO CONTACT THE TEXAS ONE CALL SYSTEM AT LEAST 48 HOURS BEFORE STARTING EXCAVATION.

CAUTION - ELECTRICITY PRESENT

THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS THAT ENTER OR WORK ON THIS PROJECT ARE RESPONSIBLE FOR LOCATING, USING ONE-CALL OR THE ELECTRIC UTILITIES THEMSELVES, ALL OVERHEAD AND UNDERGROUND ELECTRICAL OF ANY NATURE AND FOR SAFEGUARDING ALL PERSONNEL ON THIS PROJECT, INCLUDING ANY OFF-SITE WORK AREAS SHOWN ON THE PLAN, FROM ANY INTERFERENCE WITH THE ELECTRIC LINES OR FROM DAMAGING, DIGGING UP OR UNCOVERING THE ELECTRIC LINES, GETTING A LADDER IN HARMS WAY OR ANY OTHER ACTIVITY OF ANY NATURE THAT COULD HARM ANY INDIVIDUAL IN ANY MANNER. THIS RESPONSIBILITY HEREBY REMOVES THE ENGINEER AND THE OWNER FROM ANY LIABILITY OF ANY NATURE.

NO.	REVISION	DATE
1C	MODIFIED ENTRANCE DRIVE, SILT FENCE AND LIMIT OF CONSTRUCTION	05/22/24

5.22.2024
STATE OF TEXAS
MATTHEW A. DRINGENBERG
114250
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY MATTHEW A. DRINGENBERG, PE #114250 ON
THE DATE INDICATED. ANY ALTERATIONS OF THIS SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

Southwest Engineers
TBPE NO. F-1909
www.swengineers.com

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205 Cimarron Park Loop, Ste. B, Buda TX 78610
P: 512.312.4336

WARNING
IF THIS BAR DOES NOT MEASURE 1", THE DRAWING IS NOT TO SCALE

DRAWN BY: T.J.B.

CHECKED BY: A.C.K

TEMPORARY EROSION AND SEDIMENTATION CONTROL PLAN (1 OF 2)

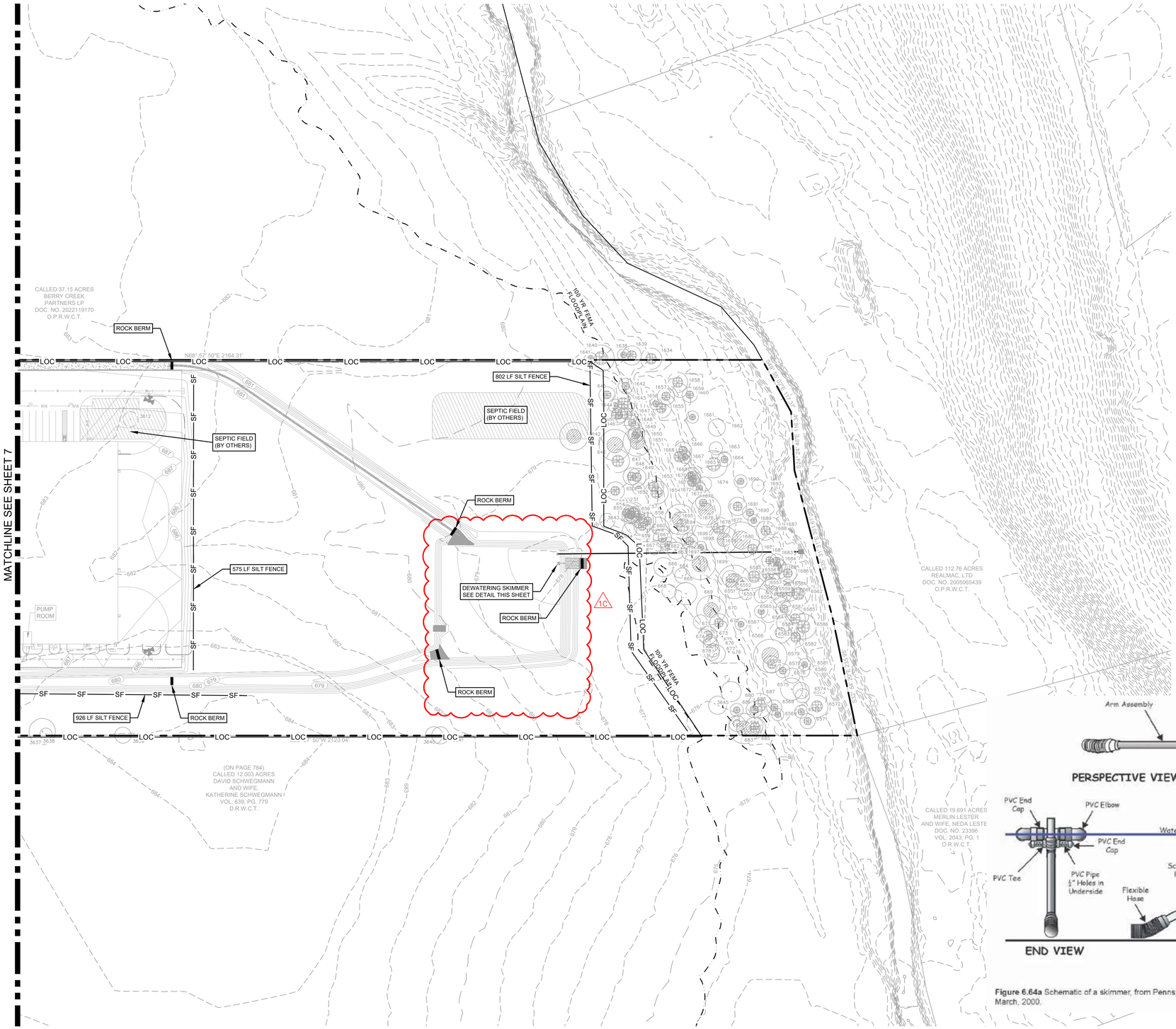
HANWHA TEXAS PLANT

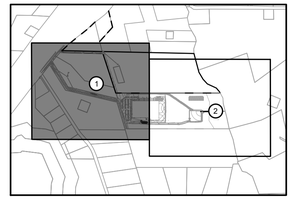
3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001

DRAWING NO.

SHEET 7 OF 46





KEY MAP
N.T.S.

0 100 200 400
HORIZONTAL SCALE: 1"=200'

LEGEND

- 700 — EXISTING CONTOURS
- 700 — PROPOSED CONTOURS
- DRAINAGE FLOW DIRECTION
- SF — SF — SILT FENCE
- LOC — LOC — LIMIT OF CONSTRUCTION
- STABILIZED CONSTRUCTION ENTRANCE
- SEPTIC FIELD
- 100 — TREE TO BE KEPT
- 100 — PROTECTED TREE TO BE KEPT
- 100 — HERITAGE TREE TO BE KEPT
- 100 — PROTECTED TREE TO BE REMOVED

NOTES

1) CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DISTURBED AREAS ON WHICH CONSTRUCTION ACTIVITIES HAVE CEASED (TEMPORARILY OR PERMANENT) AND SHALL BE STABILIZED WITHIN 14 DAYS UNLESS ACTIVITY RESUMES IN 21 DAYS, PER TPDES REQUIREMENTS.
2) CONSTRUCTION ACTIVITY AND ACCESS TO THE PROPERTY FOR CONSTRUCTION PURPOSES IS LIMITED TO THE BOUNDARY OF THE LIMITS OF CONSTRUCTION.

SEQUENCE OF CONSTRUCTION

1. INSTALL EROSION CONTROLS PER APPROVED PLAN.
2. TEMPORARY CONTROLS TO BE INSPECTED AND MAINTAINED WEEKLY AND PRIOR TO ANTICIPATED RAINFALL EVENTS, AND AFTER RAINFALL EVENTS, AS NEEDED. CONTRACTOR/OWNER SHALL PROVIDE A CONTACT NAME AND NUMBER FOR EROSION CONTROL ISSUES.
3. CONDUCT DEMOLITION ACTIVITIES, IF APPLICABLE.
4. CONSTRUCT DRAINAGE IMPROVEMENTS, IF APPLICABLE.
5. CONSTRUCT CURB INLET PROTECTION AT THE TIME OF CURB INLET INSTALLATION,IF APPLICABLE.
6. CONSTRUCT DEVELOPMENT PER APPROVED PLANS.
7. INSTALL STREETSCAPE AND/OR LANDSCAPING IMPROVEMENTS.
8. CONTRACTOR TO VEGETATE ANY DISTURBED AREAS ONCE FINAL GRADING IS COMPLETE, AND ESTABLISH A MIN OF 70% VEGETATION PRIOR TO COMPLETION. PER TPDES REQUIREMENTS, DISTURBED AREAS ON WHICH CONSTRUCTION ACTIVITIES HAVE CEASED (TEMPORARILY OR PERMANENTLY) SHALL BE STABILIZED WITHIN 14 DAYS UNLESS ACTIVITY RESUMES WITHIN 21 DAYS. SEEDING DOES NOT CONSTITUTE AS STABILIZATION.
9. REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.

1C **LIMITS OF CONSTRUCTION:**

± 1,615,043 SF = ± 37.08 AC

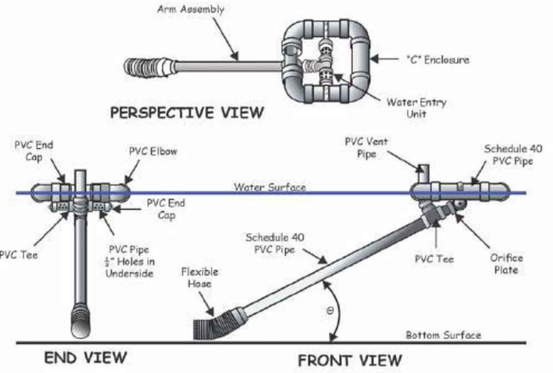


Figure 6.64a Schematic of a skimmer, from Pennsylvania Erosion and Sediment Pollution Control Manual, March, 2000.

TEXAS ONE CALL SYSTEM
1-800-245-4545

UNDER PENALTY OF LAW, THE CONTRACTOR IS REQUIRED TO CONTACT THE TEXAS ONE CALL SYSTEM AT LEAST 48 HOURS BEFORE STARTING EXCAVATION.

CAUTION - ELECTRICITY PRESENT

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NO.	REVISION	DATE
1C	MODIFIED ROCK BERM & SILT FENCE AT REVISED POND	05/22/24

5.22.2024
STATE OF TEXAS
MATTHEW A. DRINGENBERG
114250
LICENSED
PROFESSIONAL ENGINEER

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DRAWN BY: T.J.B.

CHECKED BY: A.C.K

TEMPORARY EROSION AND SEDIMENTATION CONTROL PLAN (2 OF 2)

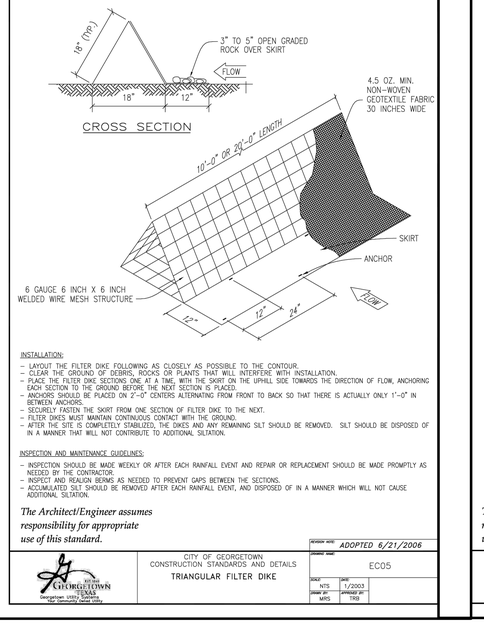
HANWHA TEXAS PLANT

3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001

DRAWING NO.

SHEET 8 OF 46

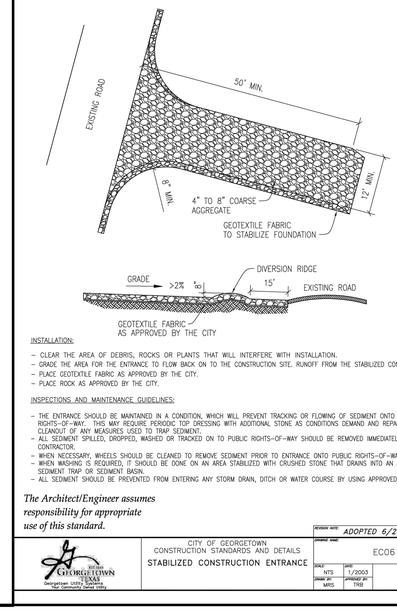


INSTALLATION:
- LAYOUT THE FILTER DIKE FOLLOWING AS CLOSELY AS POSSIBLE TO THE CONTOUR.
- CLEAR THE GROUND OF DEBRIS, ROCKS OR PLANTS THAT WILL INTERFERE WITH INSTALLATION.
- PLACE THE FILTER DIKE SECTIONS ONE AT A TIME, WITH THE SKIRT ON THE UPHILL SIDE TOWARDS THE DIRECTION OF FLOW, ANCHORING EACH SECTION TO THE GROUND BEFORE THE NEXT SECTION IS PLACED.
- ANCHORS SHOULD BE PLACED ON 2'-0" CENTERS ALTERNATING FROM FRONT TO BACK SO THAT THERE IS ACTUALLY ONLY 1'-0" IN BETWEEN ANCHORS.
- SECURELY FASTEN THE SKIRT FROM ONE SECTION OF FILTER DIKE TO THE NEXT.
- FILTER DIKES MUST MAINTAIN CONTINUOUS CONTACT WITH THE GROUND.
- AFTER THE SITE IS COMPLETELY STABILIZED, THE DIKES AND ANY REMAINING SILT SHOULD BE REMOVED. SILT SHOULD BE DISPOSED OF IN A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.

INSPECTION AND MAINTENANCE GUIDELINES:
- INSPECTION SHOULD BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
- INSPECT AND REALIGN BERMS AS NEEDED TO PREVENT GAPS BETWEEN THE SECTIONS.
- ACCUMULATED SILT SHOULD BE REMOVED AFTER EACH RAINFALL EVENT, AND DISPOSED OF IN A MANNER WHICH WILL NOT CAUSE ADDITIONAL SILTATION.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN TEXAS	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS TRIANGULAR FILTER DIKE	REVISION NOTE: ADOPTED 6/21/2006 DRAWING NAME: EC05 SCALE: NTS DATE: 1/2003 DRAWN BY: MRS APPROVED BY: TRB

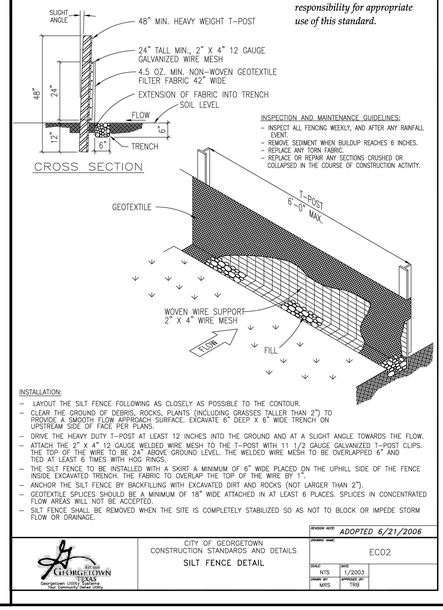


INSTALLATION:
- CLEAR THE AREA OF DEBRIS, ROCKS OR PLANTS THAT WILL INTERFERE WITH INSTALLATION.
- GRADE THE AREA FOR THE ENTRANCE TO FLOW BACK ON TO THE CONSTRUCTION SITE. RUNOFF FROM THE STABILIZED CONSTRUCTION
- PLACE GEOTEXTILE FABRIC AS APPROVED BY THE CITY.
- PLACE ROCK AS APPROVED BY THE CITY.

INSPECTIONS AND MAINTENANCE GUIDELINES:
- THE ENTRANCE SHOULD BE MAINTAINED IN A CONDITION, WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
- ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ON TO PUBLIC RIGHTS-OF-WAY SHOULD BE REMOVED IMMEDIATELY BY CONTRACTOR.
- WHEN NECESSARY, WHEELS SHOULD BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY.
- WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
- ALL SEDIMENT SHOULD BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATER COURSE BY USING APPROVED METHODS.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN TEXAS	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS STABILIZED CONSTRUCTION ENTRANCE	REVISION NOTE: ADOPTED 6/21/2006 DRAWING NAME: EC06 SCALE: NTS DATE: 1/2003 DRAWN BY: MRS APPROVED BY: TRB

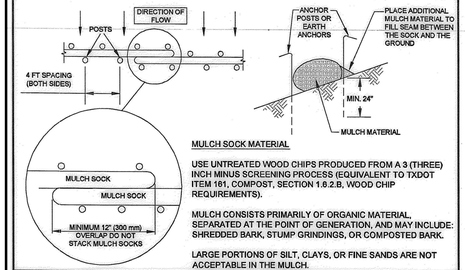


The Architect/Engineer assumes responsibility for appropriate use of this standard.

INSPECTION AND MAINTENANCE GUIDELINES:
- INSPECT ALL FENCING WEEKLY, AND AFTER ANY RAINFALL EVENT.
- REMOVE SEDIMENT WHEN BUILDUP REACHES 6 INCHES.
- REPLACE ANY TORN FABRIC.
- REPLACE OR REPAIR ANY SECTIONS CRUSHED OR COLLAPSED IN THE COURSE OF CONSTRUCTION ACTIVITY.

INSTALLATION:
- LAYOUT THE SILT FENCE FOLLOWING AS CLOSELY AS POSSIBLE TO THE CONTOUR.
- CLEAR THE GROUND OF DEBRIS, ROCKS, PLANTS (INCLUDING GRASSES TALLER THAN 2") TO PROVIDE A SMOOTH FLOW APPROACH SURFACE. EXCAVATE 6" DEEP X 6" WIDE TRENCH ON UPSTREAM SIDE OF FACE PER PLANS.
- DRIVE THE HEAVY DUTY T-POST AT LEAST 12 INCHES INTO THE GROUND AND AT A SLIGHT ANGLE TOWARDS THE FLOW.
- ATTACH THE 2" X 4" 12 GAUGE WELDED WIRE MESH TO THE T-POST WITH 11 1/2 GAUGE GALVANIZED T-POST CLIPS. THE TOP OF THE WIRE TO BE 24" ABOVE GROUND LEVEL. THE WELDED WIRE MESH TO BE OVERLAPPED 6" AND TIED AT LEAST 6 TIMES WITH HOG RINGS.
- THE SILT FENCE TO BE INSTALLED WITH A SKIRT A MINIMUM OF 6" WIDE PLACED ON THE UPHILL SIDE OF THE FENCE INSIDE EXCAVATED TRENCH. THE FABRIC TO OVERLAP THE TOP OF THE WIRE BY 1".
- ANCHOR THE SILT FENCE BY BACKFILLING WITH EXCAVATED DIRT AND ROCKS (NOT LARGER THAN 2").
- GEOTEXTILE SPLICES SHOULD BE A MINIMUM OF 18" WIDE ATTACHED IN AT LEAST 6 PLACES. SPLICES IN CONCENTRATED FLOW AREAS WILL NOT BE ACCEPTED.
- SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

CITY OF GEORGETOWN TEXAS	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS SILT FENCE DETAIL	REVISION NOTE: ADOPTED 6/21/2006 DRAWING NAME: EC02 SCALE: NTS DATE: 1/2003 DRAWN BY: MRS APPROVED BY: TRB



MULCH SOCK MATERIAL

USE UNTREATED WOOD CHIPS PRODUCED FROM A 3 (THREE) INCH MINUS SCREENING PROCESS (EQUIVALENT TO TXDOT ITEM 161, COMPOST, SECTION 1.6.2.B, WOOD CHIP REQUIREMENTS).

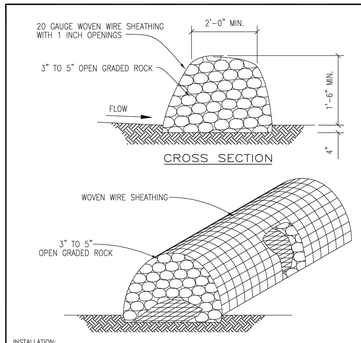
MULCH CONSISTS PRIMARILY OF ORGANIC MATERIAL, SEPARATED AT THE POINT OF GENERATION, AND MAY INCLUDE: SHREDDED BARK, STUMP GRINDINGS, OR COMPOSTED BARK.

LARGE PORTIONS OF SILT, CLAYS, OR FINE SANDS ARE NOT ACCEPTABLE IN THE MULCH.

NOTES:

1. **STEEL OR WOOD POSTS WHICH SUPPORT THE MULCH SOCK SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF 600mm (24 inches). IF WOOD POSTS CANNOT ACHIEVE 600mm (24 inches) DEPTH, USE STEEL POSTS. EARTH ANCHORS ARE ALSO ACCEPTABLE.**
2. **THE TOE OF THE MULCH SOCK SHALL BE PLACED SO THAT THE MULCH SOCK IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. IN ORDER TO PREVENT WATER FROM FLOWING BETWEEN THE JOINTS OF ADJACENT ENDS OFMULCH SOCKS, LAP THE ENDS OF ADJACENT MULCH SOCKS A MINIMUM OF 300mm (12 inches).**
3. **MULCH MATERIAL MUST BE FREE OF REFUSE, PHYSICAL CONTAMINANTS, AND MATERIAL TOXIC TO PLANT GROWTH; IT IS NOT ACCEPTABLE FOR THE MULCH MATERIAL TO CONTAIN GROUND CONSTRUCTION DEBRIS, BIOSOLIDS, OR MANURE.**
4. **SOCK MATERIAL WILL BE 100% BIODEGRADABLE, PHOTODEGRADABLE, OR RECYCLABLE SUCH AS BURLAP, TWINE, UV PHOTOBIODEGRADABLE PLASTIC, POLYESTER, OR ANY OTHER ACCEPTABLE MATERIAL.**
5. **MULCH SOCKS SHOULD BE USED AT THE BASE OF SLOPES NO STEEPER THAN 2:1 AND SHOULD NOT EXCEED THE MAXIMUM SPACING CRITERIA PROVIDED IN CITY OF AUSTIN ENVIRONMENTAL CRITERIA MANUAL TABLE 1.4.5.F.1 FOR A GIVEN SLOPE CATEGORY.**
6. **ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 150mm (6 Inches). THE SILT SHALL BE DISPOSED OF ON AN APPROVED SITE AND IN SUCH A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.**

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	**MULCH SOCK**	
08/24/2010 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. **648S-1**

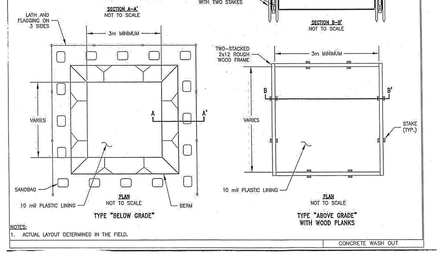


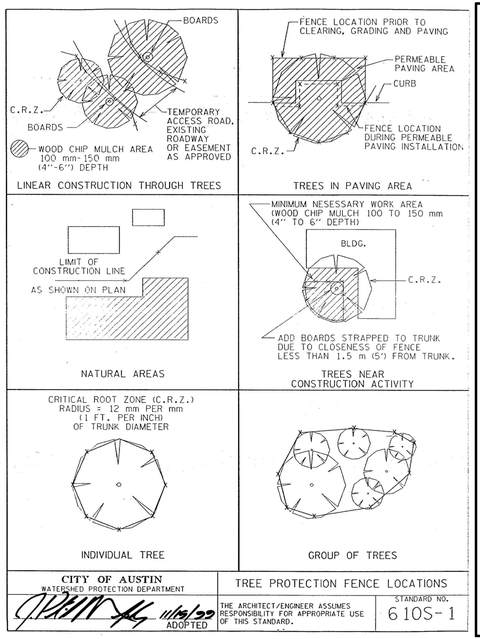
INSTALLATION:
- LAYOUT THE ROCK BERM FOLLOWING AS CLOSELY AS POSSIBLE TO THE CONTOUR.
- CLEAR THE GROUND OF DEBRIS, ROCKS OR PLANTS THAT WILL INTERFERE WITH INSTALLATION.
- PLACE WOVEN WIRE FABRIC ON THE GROUND ALONG THE PROPOSED INSTALLATION WITH ENOUGH OVERLAP TO COMPLETELY ENCIRCLE THE FINISHED SIZE OF THE BERM.
- PLACE THE ROCK ALONG THE CENTER OF THE WIRE TO THE DESIGNATED HEIGHT.
- WRAP THE STRUCTURE WITH THE PREVIOUSLY PLACED WIRE MESH SECURE ENOUGH SO THAT WHEN WALKED ACROSS THE STRUCTURE RETAINS IT'S SHAPE.
- SECURE WITH TIE WIRE.
- THE ENDS OF THE BERM SHOULD BE TIED INTO EXISTING UPSLOPE GRADE AND THE BERM SHOULD BE BURIED IN A TRENCH APPROX. 4 INCHES DEEP TO PREVENT FAILURE OF THE CONTROL.
- THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.

INSPECTION AND MAINTENANCE GUIDELINES:
- INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL EVENT BY THE RESPONSIBLE PARTY. FOR INSTALLATIONS IN STREAMBEDS, ADDITIONAL DAILY INSPECTIONS SHOULD BE MADE.
- REMOVE SEDIMENT AND OTHER DEBRIS WHEN BUILDUP REACHES 6 INCHES AND DISPOSE OF THE ACCUMULATED SILT IN AN APPROVED MANNER.
- REMOVE ANY LOOSE WIRE SHEATHING.
- THE BERM SHOULD BE RESHAPED AS NEEDED DURING INSPECTION.
- THE BERM SHOULD BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.

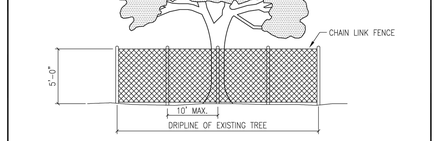
The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN TEXAS	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS ROCK BERM DETAIL	REVISION NOTE: ADOPTED 6/21/2006 DRAWING NAME: EC03 SCALE: NTS DATE: 1/2003 DRAWN BY: MRS APPROVED BY: TRB





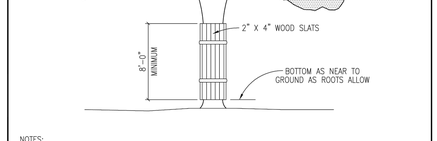
CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	TREE PROTECTION FENCE LOCATIONS	
11/9/99 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. **610S-1**



NOTES:
1. TREE PROTECTION FENCES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR GRADING).
2. FENCES SHALL COMPLETELY SURROUND THE TREE, OR CLUSTERS OF TREES; WILL BE LOCATED AT THE OUTERMOST LIMIT OF THE TREE BRANCHES (DRIPLINE), AND WILL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PROJECT IN ORDER TO PREVENT THE FOLLOWING:
   A. SOIL COMPACTION IN THE ROOT ZONE AREA RESULTING FROM VEHICULAR TRAFFIC, OR STORAGE OF EQUIPMENT OR MATERIALS.
   B. ROOT ZONE DISTURBANCES DUE TO GRADE CHANGES (GREATER THAN SIX INCHES (6") CUT OR FILL, OR TRENCHING NOT REVIEWED AND AUTHORIZED BY THE CITY.
   C. WOUNDS TO EXPOSED ROOTS, TRUNKS OR LIMBS BY MECHANICAL EQUIPMENT.
   D. OTHER ACTIVITIES DETRIMENTAL TO TREES, SUCH AS CHEMICAL STORAGE, CEMENT TRUCK CLEANING AND FIRE.
3. EXCEPTIONS TO INSTALLING FENCES AT TREE DRIPLINES MAY BE PERMITTED IN THE FOLLOWING CASES:
   A. WHERE PERMEABLE PAVING IS TO BE INSTALLED, ERECT THE FENCE AT THE OUTER LIMITS OF THE PERMEABLE PAVING AREA.
   B. WHERE TREES ARE CLOSE TO PROPOSED BUILDINGS, ERECT THE FENCE NO CLOSER THAN SIX FEET (6'-0") TO BUILDING.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN TEXAS	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS TREE PROTECTION – CHAIN LINK FENCE	REVISION NOTE: ADOPTED 6/21/2006 DRAWING NAME: EC09 SCALE: NTS DATE: 1/2003 DRAWN BY: MRS APPROVED BY: TRB



NOTES:
1. WHERE ANY EXCEPTIONS RESULT IN A FENCE BEING CLOSER THAN FOUR FEET (4'-0") TO A TREE TRUNK; PROTECT THE TRUNK WITH STRAPPED-ON-PLANKING TO A HEIGHT OF EIGHT FEET (8'-0"), OR TO THE LIMITS OF LOWER BRANCHING IN ADDITION TO THE REDUCED FENCING PROVIDED.
2. ANY ROOTS EXPOSED BY CONSTRUCTION ACTIVITY SHALL BE PRUNED FLUSH WITH THE SOIL. BACKFILL ROOT AREAS WITH GOOD QUALITY TOP SOIL AS SOON AS POSSIBLE. IF EXPOSED ROOT AREAS ARE NOT BACKFILLED WITHIN TWO (2) DAYS, COVER THEM WITH ORGANIC MATERIAL IN A MANNER WHICH REDUCES SOIL TEMPERATURE, AND MINIMIZES WATER LOSS DUE TO EVAPORATION.
3. PRIOR EXCAVATION OR GRADE CUTTING WITHIN TREE DRIPLINE, MAKE A CLEAN CUT BETWEEN THE DISTURBED AND UNDISTURBED ROOT ZONES WITH A ROCK SAW OR SIMILAR EQUIPMENT, TO MINIMIZE DAMAGE TO REMAINING ROOTS.
4. TREES MOST HEAVILY IMPACTED BY CONSTRUCTION ACTIVITIES SHOULD BE WATERED DEEPLY ONCE A WEEK DURING PERIODS OF HOT, DRY WEATHER. TREE CROWNS SHOULD BE SPRAYED WITH WATER PERIODICALLY TO REDUCE DUST ACCUMULATION ON THE LEAVES.
5. ANY TRENCHING REQUIRED FOR THE INSTALLATION OF LANDSCAPE IRRIGATION SHALL BE PLACED AS FAR FROM EXISTING TREE TRUNKS AS POSSIBLE.
6. NO LANDSCAPE TOPSOIL DRESSING GREATER THE FOUR INCHES (4") SHALL BE PERMITTED WITHIN THE DRIPLINE OF A TREE. NO SOIL IS PERMITTED ON THE ROOT FLARE OF ANY TREE.
7. PRUNING TO PROVIDE CLEARANCE FOR STRUCTURES, VEHICULAR TRAFFIC AND EQUIPMENT SHALL TAKE PLACE BEFORE CONSTRUCTION BEGINS.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN TEXAS	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS TREE PROTECTION – WOOD SLATS	REVISION NOTE: ADOPTED 6/21/2006 DRAWING NAME: EC10 SCALE: NTS DATE: 1/2003 DRAWN BY: MRS APPROVED BY: TRB

TEXAS ONE CALL SYSTEM
1-800-245-4545

UNDER PENALTY OF LAW, THE CONTRACTOR IS REQUIRED TO CONTACT THE TEXAS ONE CALL SYSTEM AT LEAST 48 HOURS BEFORE STARTING EXCAVATION.

CAUTION - ELECTRICITY PRESENT

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NO.	REVISION	DATE

4.9.2024

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY MATTHEW A. DRINGENBERG, PE #114250 ON THE DATE INDICATED. ANY ALTERATIONS OF THIS SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

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P: 512.312.4336

WARNING
IF THIS BAR DOES NOT MEASURE 1". THE DRAWING IS NOT TO SCALE

DRAWN BY: T.J.B.

CHECKED BY: A.C.K

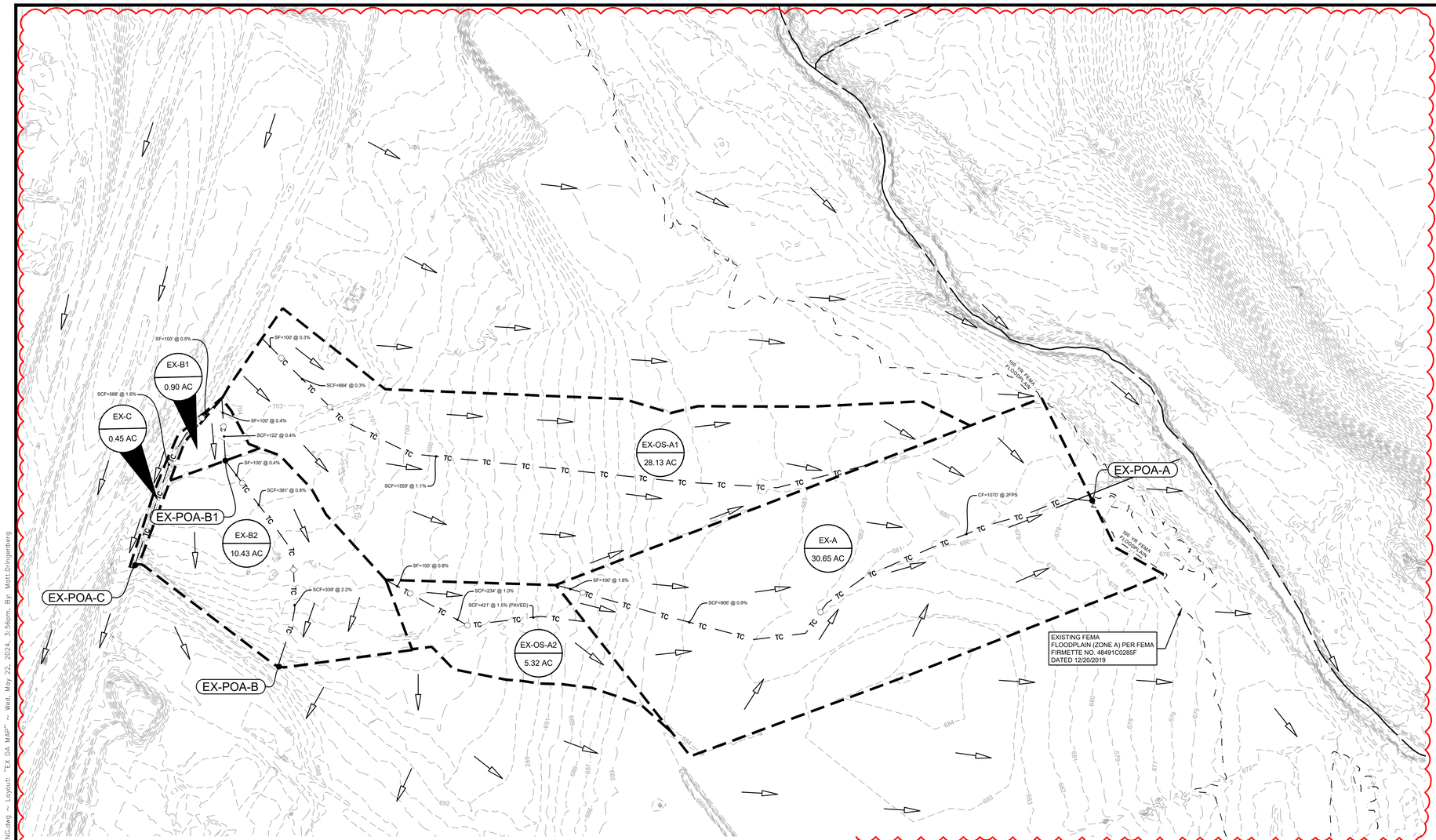
EROSION AND SEDIMENTATION CONTROL DETAILS

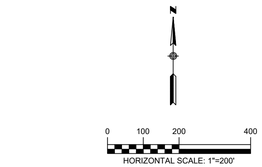
HANWHA TEXAS PLANT
3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001

DRAWING NO.

SHEET 9 OF 46





LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- DRAINAGE AREA
- TC — TC — TIME OF CONCENTRATION
- A—1 POINT OF ANALYSIS
- DRAINAGE FLOW DIRECTION
- DA / ACRES DRAINAGE AREA LABEL
- # INLET LABEL
- TIME OF CONCENTRATION CHANGE IN FLOW TYPES

ABBREVIATIONS:
SF = SHEET FLOW
SCF = SHALLOW CONCENTRATED FLOWS
CF = CHANNEL FLOW

NOTES:

1. ON-SITE SURVEY TOPOGRAPHIC INFORMATION PROVIDED BY LANDPOINT, LLC OBTAINED ON OCTOBER, 13, 2022.
2. OFF-SITE TOPOGRAPHIC INFORMATION OBTAINED FROM THE TEXAS NATURAL RESOURCES INFORMATION SYSTEM.
3. REFER TO WATER QUALITY AND DETENTION POND SHEETS FOR ADDITIONAL DRAINAGE CALCULATIONS AND DETAILS.

EXHIBIT 2 - TABLE 2, DEPTH-DURATION-FREQUENCY VALUES
SAN GABRIEL RIVER ZONE

DURATION	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR	500-YR	1000-YR
5 MIN	0.51	0.643	0.757	0.921	1.05	1.19	1.53	1.69
15 MIN	1.02	1.29	1.51	1.84	2.1	2.37	3.03	3.33
1 HR	1.88	2.37	2.79	3.4	3.88	4.39	5.79	6.47
2 HR	2.3	2.95	3.55	4.43	5.16	5.98	8.28	9.43
3 HR	2.55	3.3	4.02	5.09	6.01	7.06	10.1	11.6
6 HR	2.98	3.91	4.81	6.18	7.38	8.75	12.7	14.7
12 HR	3.44	4.51	5.54	7.12	8.48	10.1	14.6	16.9
24 HR	3.94	5.15	6.3	8.04	9.53	11.2	16.1	18.6

EXISTING TIME OF CONCENTRATION

DRAINAGE AREA	SHEET FLOW				SHALLOW CONCENTRATED FLOW				SHALLOW CONCENTRATED FLOW				CHANNEL FLOW				
	SLOPE (FT/FT)	L FT	n	Tc sheet (MIN.)	SLOPE (FT/FT)	L FT	Paved? Y or N	Tc Shallow (MIN.)	SLOPE (FT/FT)	L FT	Paved? Y or N	Tc Shallow (MIN.)	Vavg (FT/S)	L	Tc Channel (MIN.)	Total Tc (MIN.)	Total Tc (Hr.)
EX-C	0.005	100.00	0.24	21.7	0.016	588.0	N	4.8	---	---	--	--	---	---	--	26.5	0.44
EX-B1	0.004	100.00	0.24	23.8	0.004	122.0	N	2.0	---	---	--	--	---	---	--	25.8	0.43
EX-B2	0.004	100.00	0.24	23.8	0.008	381.0	N	4.4	0.022	339.0	N	2.4	---	---	--	30.5	0.51
EX-OS-A1	0.003	100.00	0.24	26.7	0.003	684.0	N	12.9	0.011	1559.0	N	15.4	---	---	--	54.9	0.92
EX-OS-A2	0.008	100.00	0.24	18.0	0.010	234.0	N	2.4	0.015	421.0	Y	2.8	---	---	--	23.2	0.39
EX-A	0.018	100.00	0.24	13.0	0.009	906.0	N	9.9	---	---	--	--	2.00	1070.00	8.92	31.8	0.53

EXISTING ROUTING TIMES

REACH	SHALLOW CONCENTRATED FLOW				SHALLOW CONCENTRATED FLOW				SHALLOW CONCENTRATED FLOW				CHANNEL FLOW (GUTTER)			Total Tc (MIN.)	Total Lag Time (MIN.)
	SLOPE (FT/FT)	L FT	Paved? Y or N	Tc Shallow (MIN.)	SLOPE (FT/FT)	L FT	Paved? Y or N	Tc Shallow (MIN.)	SLOPE (FT/FT)	L FT	Paved? Y or N	Tc Shallow (MIN.)	Vavg (FT/S)	L FT	Tc Channel (MIN.)		
EX-B1	0.004	100	N	1.6	0.008	381	N	4.4	0.022	316	N	2.2	---	---	0.0	8.2	4.9
EX-OS-A1	0.006	831	N	11.1	0.000	0	N	0.0	---	---	---	0.0	---	---	0.0	11.1	6.6
EX-OS-A2	0.009	884	N	9.6	0.000	0	N	0.0	---	---	---	0.0	2.00	1070.000	8.9	18.5	11.1

EXISTING DRAINAGE SUMMARY TABLE (SCS METHOD)

AREA NAME	EX-C	EX-POA-C	EX-B1	EX-B2	EX-POA-B	EX-OS-A1	EX-OS-A2	EX-A	EX-POA-A
Drainage Area (ac.)	0.45	---	0.90	10.43	---	28.13	5.32	30.65	---
Base CN #	80	---	74	80	---	75	80	70	---
Impervious Cover (ac)	0.04	---	0.07	0.81	---	0.50	0.24	0.06	---
% Impervious	9.8%	---	7.9%	7.8%	---	1.8%	4.5%	0.2%	---
*Adjusted CN #	82	---	76	81	---	75	81	70	---
Tc (min)	26.5	---	25.8	30.5	---	54.9	23.2	31.8	---
Tc Lag (min)	15.9	---	15.5	18.3	---	32.9	13.9	19.1	---
2 year Discharge (cfs)	0.84	0.84	1.33	17.85	19.11	27.18	10.04	30.31	59.31
10 year Discharge (cfs)	1.53	1.53	2.66	32.99	35.57	55.90	18.81	69.23	127.66
25 year Discharge (cfs)	2.00	2.00	3.61	43.35	46.86	76.58	24.78	97.85	177.28
100 year Discharge (cfs)	2.77	2.77	5.18	60.51	65.61	112.00	34.72	147.77	261.38

Drainage calculations were performed using the U.S. Army Corps of Engineers HEC-HMS Version 4.11 software. Drainage assumptions (rainfall, depths, distribution, etc.) are based on NOAA Atlas-14 data.
*Adjusted CN values are the result of the Base CN values after accounting for proposed impervious cover.

TEXAS ONE CALL SYSTEM
1-800-245-4545

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NO.	REVISION	DATE
1C	MODIFIED DRAINAGE AREAS AND CALCULATIONS	05/22/24

5.22.2024
STATE OF TEXAS
MATTHEW A. DRINGENBERG
114250
LICENSED
PROFESSIONAL
ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY MATTHEW A. DRINGENBERG, PE #114250 ON
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DRAWN BY: T.J.B.

CHECKED BY: A.C.K

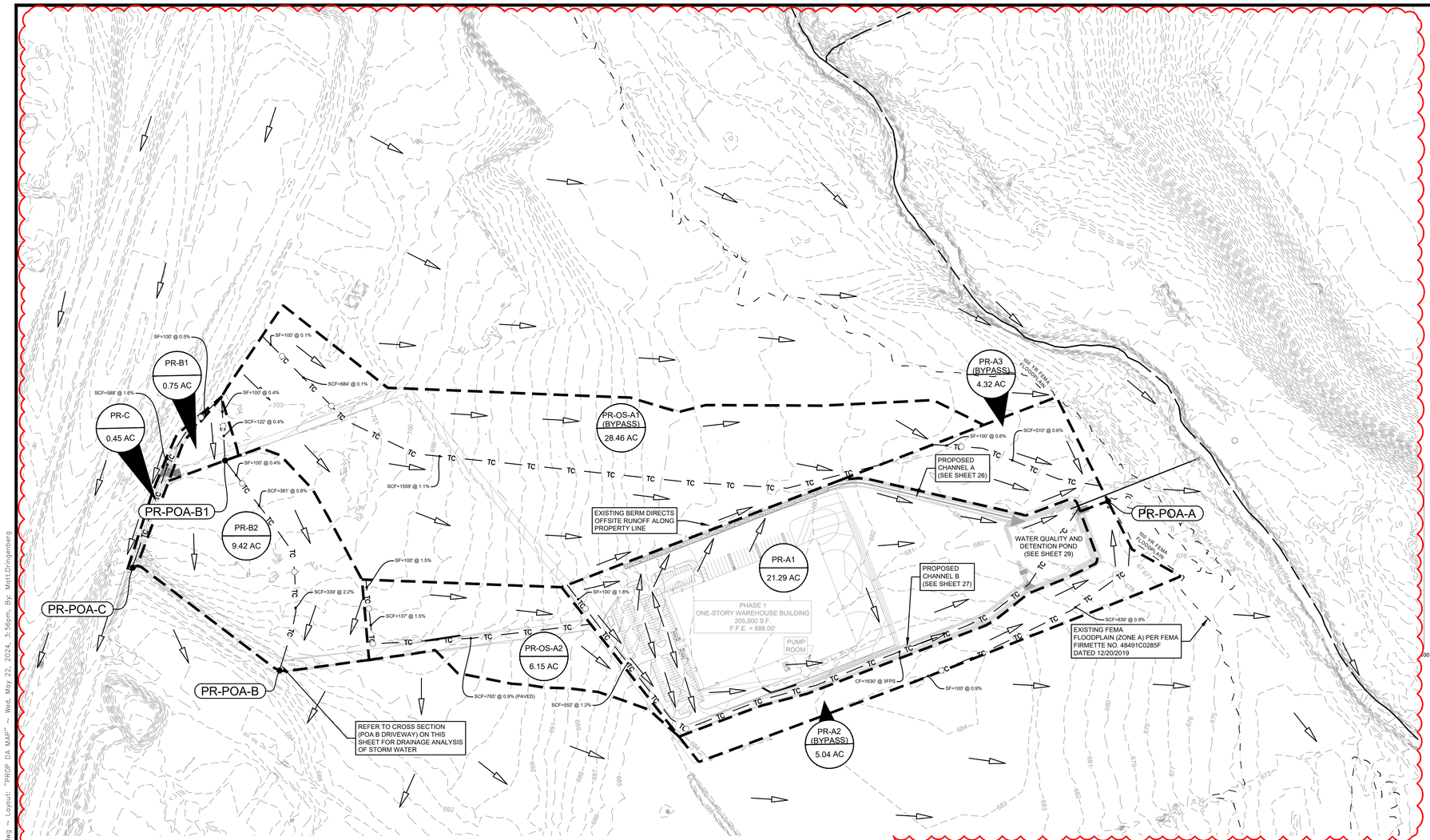
EXISTING DRAINAGE AREA MAP

HANWHA TEXAS PLANT
3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001

DRAWING NO.

SHEET 10 OF 46



0 100 200 400
HORIZONTAL SCALE: 1"=200'

LEGEND
- EXISTING CONTOURS
- PROPOSED CONTOURS
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- TC — TC — TIME OF CONCENTRATION
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CF = CHANNEL FLOW

Channel Report

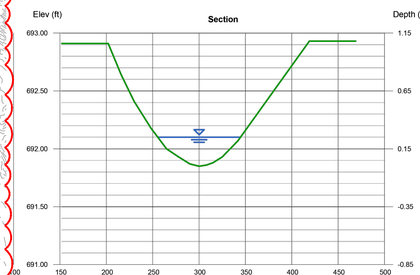
HydraFlow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Monday, Jan 29 2024

POA-B DRIVEWAY OVERTOPPING CALCULATION

User-defined		Highlighted	
Invert Elev (ft)	= 691.85	Depth (ft)	= 0.25
Slope (%)	= 2.00	Q (cfs)	= 57.17
N-Value	= 0.015	Area (sqft)	= 14.29
		Velocity (ft/s)	= 4.00
Calculations		Wetted Perim (ft)	= 89.13
Compute by:	Known Q	Crit Depth, Yc (ft)	= 0.33
Known Q (cfs)	= 57.17	Top Width (ft)	= 89.13
		EGL (ft)	= 0.50

(Sta, El, n)-(Sta, El, n)...
(202.00, 692.91)-(216.00, 692.64, 0.015)-(230.00, 692.41, 0.015)-(248.00, 692.18, 0.015)-(265.00, 692.00, 0.015)-(278.00, 691.93, 0.015)-(290.00, 691.87, 0.015) -(300.00, 691.85, 0.015)-(308.00, 691.86, 0.015)-(315.00, 691.88, 0.015)-(325.00, 691.93, 0.015)-(342.00, 692.07, 0.015)-(419.00, 692.93, 0.015)

Section



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4. DRAINAGE FOR THIS DEVELOPMENT HAS BEEN DESIGNED SUCH THAT THERE WILL BE NO ADVERSE IMPACTS ON THE CAPACITY, FUNCTION OR INTEGRITY OF TEXAS DEPARTMENT TRANSPORTATION RIGHT OF WAY DRAINAGE FACILITIES.

EXHIBIT 2 - TABLE 2, DEPTH-DURATION-FREQUENCY VALUES
SAN GABRIEL RIVER ZONE

DURATION	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR	500-YR	1000-YR
5 MIN	0.51	0.643	0.757	0.921	1.05	1.19	1.53	1.69
15 MIN	1.02	1.29	1.51	1.84	2.1	2.37	3.03	3.33
1 HR	1.88	2.37	2.79	3.4	3.88	4.39	5.79	6.47
2 HR	2.3	2.95	3.55	4.43	5.16	5.98	8.28	9.43
3 HR	2.55	3.3	4.02	5.09	6.01	7.06	10.1	11.6
6 HR	2.98	3.91	4.81	6.18	7.38	8.75	12.7	14.7
12 HR	3.44	4.51	5.54	7.12	8.48	10.1	14.6	16.9
24 HR	3.94	5.15	6.3	8.04	9.53	11.2	16.1	18.6

PROPOSED TIME OF CONCENTRATION

DRAINAGE AREA	SHEET FLOW				SHALLOW CONCENTRATED FLOW				SHALLOW CONCENTRATED FLOW				CHANNEL FLOW				
	SLOPE (FT/FT)	L FT	n	Tc sheet (MIN.)	SLOPE (FT/FT)	L FT	Paved? Y or N	Tc Shallow (MIN.)	SLOPE (FT/FT)	L FT	Paved? Y or N	Tc Shallow (MIN.)	Vavg (FT/S)	L	Tc Channel (MIN.)	Total Tc (MIN.)	Total Tc (Hr.)
PR-C	0.005	100.00	0.24	21.7	0.016	588.0	N	4.8	---	---	--	--	---	---	--	26.5	0.44
PR-B1	0.004	100.00	0.24	23.8	0.004	122.0	N	2.0	---	---	--	--	---	---	--	25.8	0.43
PR-B2	0.004	100.00	0.24	23.8	0.008	381.0	N	4.4	0.022	339.0	N	2.4	---	---	--	30.5	0.51
PR-OS-A1 (BYPASS)	0.003	100.00	0.24	26.7	0.003	684.0	N	12.9	0.011	1559.0	N	15.4	---	---	--	54.9	0.92
PR-OS-A2	0.002	100.00	0.24	35.2	0.002	137.0	N	3.7	0.009	765.0	Y	6.6	---	---	--	45.5	0.76
PR-A1	0.018	100.00	0.011	1.1	0.012	552.0	Y	4.1	---	---	--	---	3.00	1630.00	9.06	14.3	0.24
PR-A2 (BYPASS)	0.009	100.00	0.24	17.2	0.009	839.0	N	9.1	---	---	--	---	---	---	--	26.3	0.44
PR-A3 (BYPASS)	0.006	100.00	0.24	20.2	0.006	510.0	N	6.8	---	---	--	---	---	---	--	27.0	0.45

PROPOSED ROUTING TIMES

REACH	SHALLOW CONCENTRATED FLOW				SHALLOW CONCENTRATED FLOW				SHALLOW CONCENTRATED FLOW				CHANNEL FLOW (GUTTER)			Total Tc (MIN.)	Total Lag Time (MIN.)
	SLOPE (FT/FT)	L FT	Paved? Y or N	Tc Shallow (MIN.)	SLOPE (FT/FT)	L FT	Paved? Y or N	Tc Shallow (MIN.)	SLOPE (FT/FT)	L FT	Paved? Y or N	Tc Shallow (MIN.)	Vavg (FT/S)	L FT	Tc Channel (MIN.)		
PR-B1	0.004	100	N	1.6	0.008	381	N	4.4	0.022	316	N	2.2	---	---	0.0	8.2	4.9
PR-OS-A1	0.006	610	N	8.1	---	---	---	0.0	---	---	---	0.0	---	---	0.0	8.1	4.9
PR-OS-A2	0.009	485	N	5.3	---	---	---	0.0	---	---	---	0.0	3.00	1690.000	9.4	14.7	8.8

POA A - PROPOSED DRAINAGE SUMMARY TABLE (SCS METHOD)

AREA NAME	PROPOSED							EXISTING
	PR-OS-A1 (BYPASS)	PR-OS-A2 (TO POND)	PR-A1 (TO POND)	PR-A2 (BYPASS)	PR-A3 (BYPASS)	DETENTION POND WSE	PR-POA-A	EX-POA-A
Drainage Area (ac.)	28.46	6.15	21.29	5.04	4.32	---	---	---
Base CN #	75	80	71	68	69	---	---	---
Impervious Cover (ac)	1.16	0.65	11.14	0.00	0.00	---	---	---
% Impervious	4.1%	10.5%	52.3%	0.0%	0.0%	---	---	---
*Adjusted CN #	76	82	85	68	69	---	---	---
Tc (min)	54.9	45.5	14.3	26.3	27.0	---	---	---
Tc Lag (min)	32.9	27.3	8.6	15.8	16.2	---	---	---
2 year Discharge (cfs)	28.15	8.70	57.33	4.82	4.33	678.65 (msl)	59.29	59.31
10 year Discharge (cfs)	57.15	15.98	96.80	11.72	10.28	679.18 (msl)	123.59	127.66
25 year Discharge (cfs)	78.03	20.98	124.07	16.89	14.70	679.48 (msl)	171.78	177.28
100 year Discharge (cfs)	113.72	29.29	170.86	25.76	22.27	679.92 (msl)	254.00	261.38

Drainage calculations were performed using the U.S. Army Corps of Engineers HEC-HMS Version 4.11 software. Drainage assumptions (rainfall, depths, distribution, etc.) are based on NOAA Atlas-14 data.
*Adjusted CN values are the result of the Base CN values after accounting for proposed impervious cover.

POA B - PROPOSED DRAINAGE SUMMARY TABLE (SCS METHOD)

AREA NAME	PROPOSED			EXISTING
	PR-B1	PR-B2	PR-POA-B	EX-POA-B
Drainage Area (ac.)	0.75	9.42	---	---
Base CN #	74	80	---	---
Impervious Cover (ac)	0.14	1.34	---	---
% Impervious	19.1%	14.2%	---	---
Adjusted CN #	79	83	---	---
Tc (min)	25.8	30.5	---	---
Tc Lag (min)	15.5	18.3	---	---
2 year Discharge (cfs)	1.28	16.80	18.03	19.11
10 year Discharge (cfs)	2.42	30.39	32.74	35.57
25 year Discharge (cfs)	3.22	39.96	42.80	46.86
100 year Discharge (cfs)	4.54	55.03	59.52	65.61

Drainage calculations were performed using the U.S. Army Corps of Engineers HEC-HMS Version 4.11 software. Drainage assumptions (rainfall, depths, distribution, etc.) are based on NOAA Atlas-14 data.

POA C - PROPOSED DRAINAGE SUMMARY TABLE (SCS METHOD)

AREA NAME	PROPOSED		EXISTING
	PR-C	PR-POA-C	EX-POA-C
Drainage Area (ac.)	0.45	---	---
Base CN #	80	---	---
Impervious Cover (ac)	0.08	---	---
% Impervious	16.5%	---	---
Adjusted CN #	83	---	---
Tc (min)	26.5	---	---
Tc Lag (min)	15.9	---	---
2 year Discharge (cfs)	0.88	0.88	0.84
10 year Discharge (cfs)	1.56	1.56	1.53
25 year Discharge (cfs)	2.03	2.03	2.00
100 year Discharge (cfs)	2.79	2.79	2.77

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TEXAS ONE CALL SYSTEM
1-800-245-4545

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NO.	REVISION	DATE
1C	MODIFIED DRAINAGE AREAS AND CALCULATIONS	05/22/24

5.22.2024

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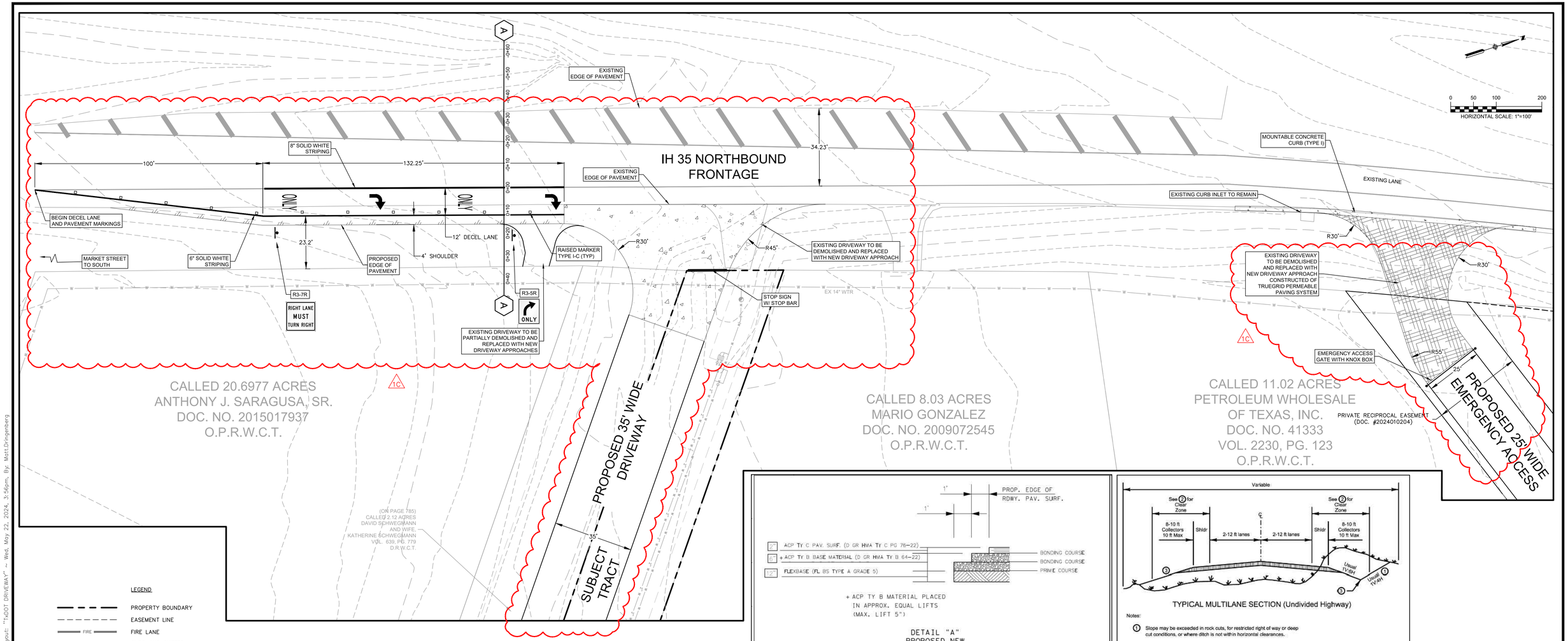
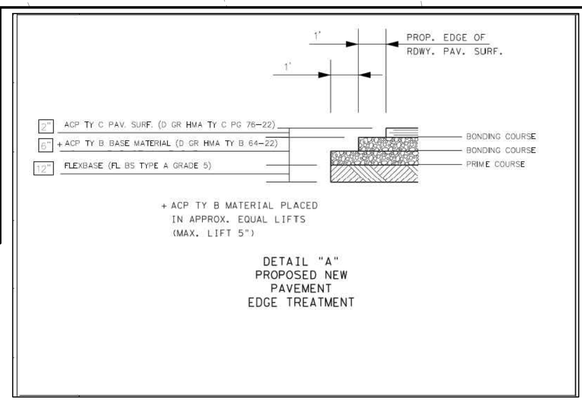
DRAWN BY: T.J.B.
CHECKED BY: A.C.K

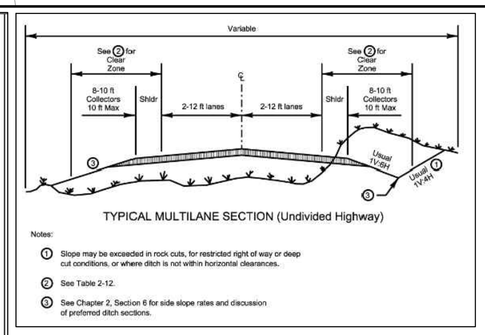
PROPOSED DRAINAGE AREA MAP

HANWHA TEXAS PLANT
3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001
DRAWING NO.
SHEET 11 OF 46





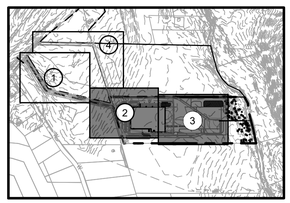


LEGEND

- PROPERTY BOUNDARY
- EASEMENT LINE
- FIRE LANE
- CURB AND GUTTER
- LOC — LIMITS OF CONSTRUCTION
- ACCESSIBLE ROUTE
- SIGN
- TREE TO BE KEPT
- PROTECTED TREE TO BE KEPT

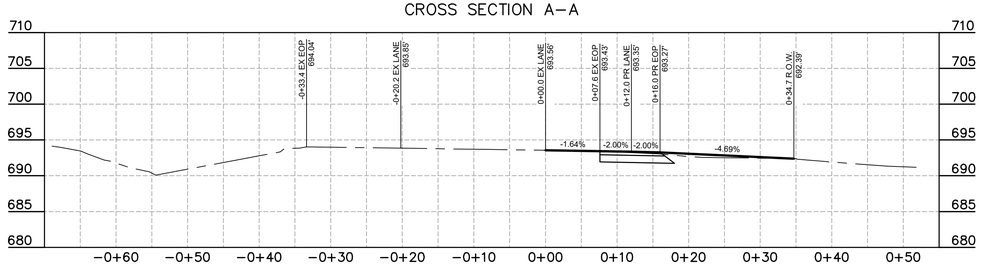
NOTES:

1. ALL PAVEMENT MARKINGS TO MEET TXDOT DETAILS AND SPECIFICATIONS
2. ALL PAVEMENT MARKINGS/STRIPING TO BE 100 MIL AND RETROREFLECTIVE



KEY MAP
N.T.S.

CROSS SECTION A–A



TEXAS ONE CALL SYSTEM
1-800-245-4545

UNDER PENALTY OF LAW, THE CONTRACTOR IS REQUIRED TO CONTACT THE TEXAS ONE CALL SYSTEM AT LEAST 48 HOURS BEFORE STARTING EXCAVATION.

CAUTION - ELECTRICITY PRESENT

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NO.	REVISION	DATE
1C	MODIFIED DRIVEWAY APPROACHES	05/22/24

5.22.2024
STATE OF TEXAS
MATTHEW A. DRINGENBERG
114250
LICENSED
PROFESSIONAL
ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY MATTHEW A. DRINGENBERG, PE #114250 ON THE DATE INDICATED. ANY ALTERATIONS OF THIS SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

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CENTRAL TEXAS
205 Cimarron Park Loop, Ste. B, Buda TX 78610
P: 512.312.4336

WARNING
IF THIS BAR DOES NOT MEASURE 1", THE DRAWING IS NOT TO SCALE

DRAWN BY: T.J.B.

CHECKED BY: A.C.K

TXDOT DRIVEWAYS PLAN

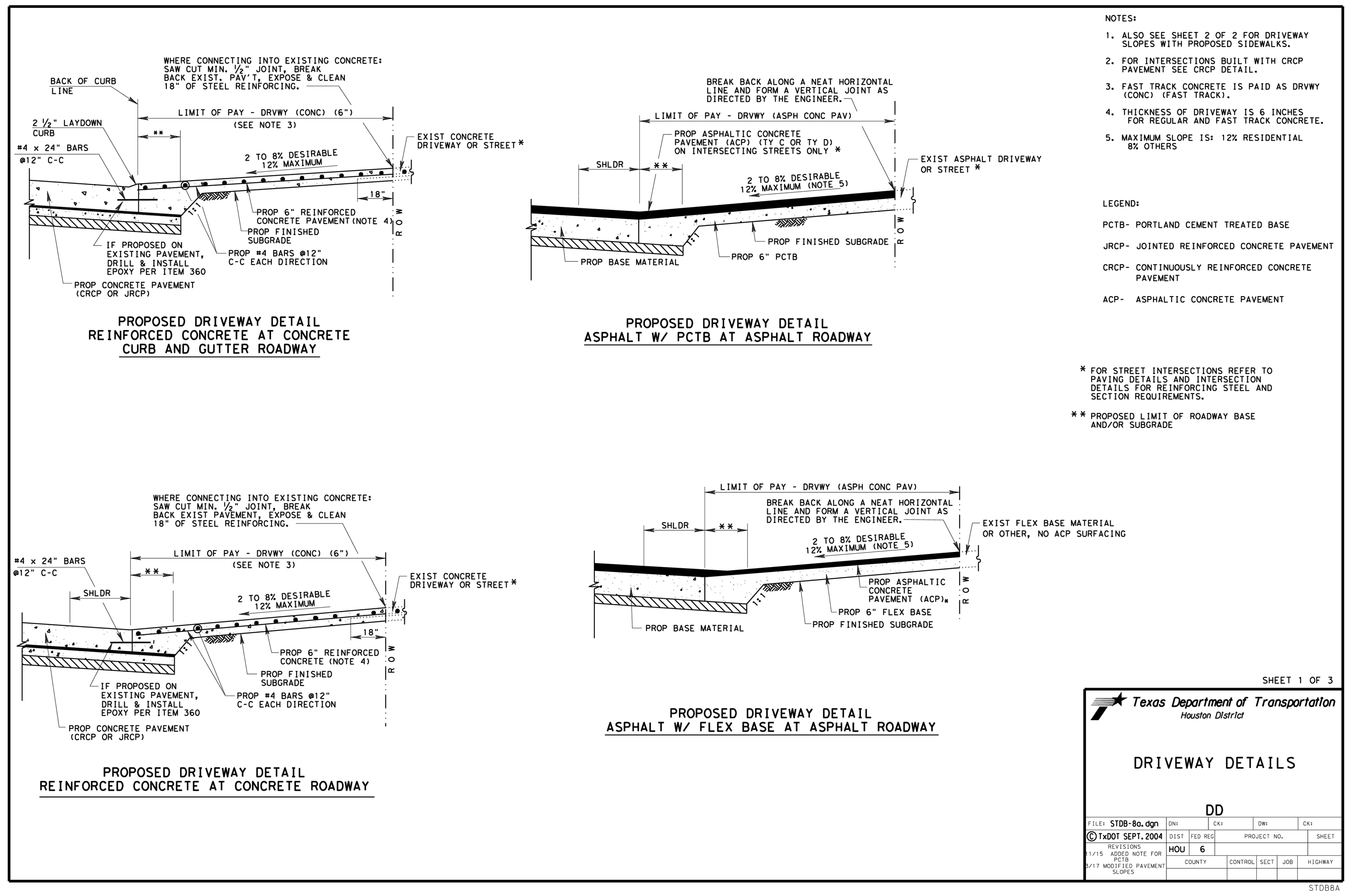
HANWHA TEXAS PLANT

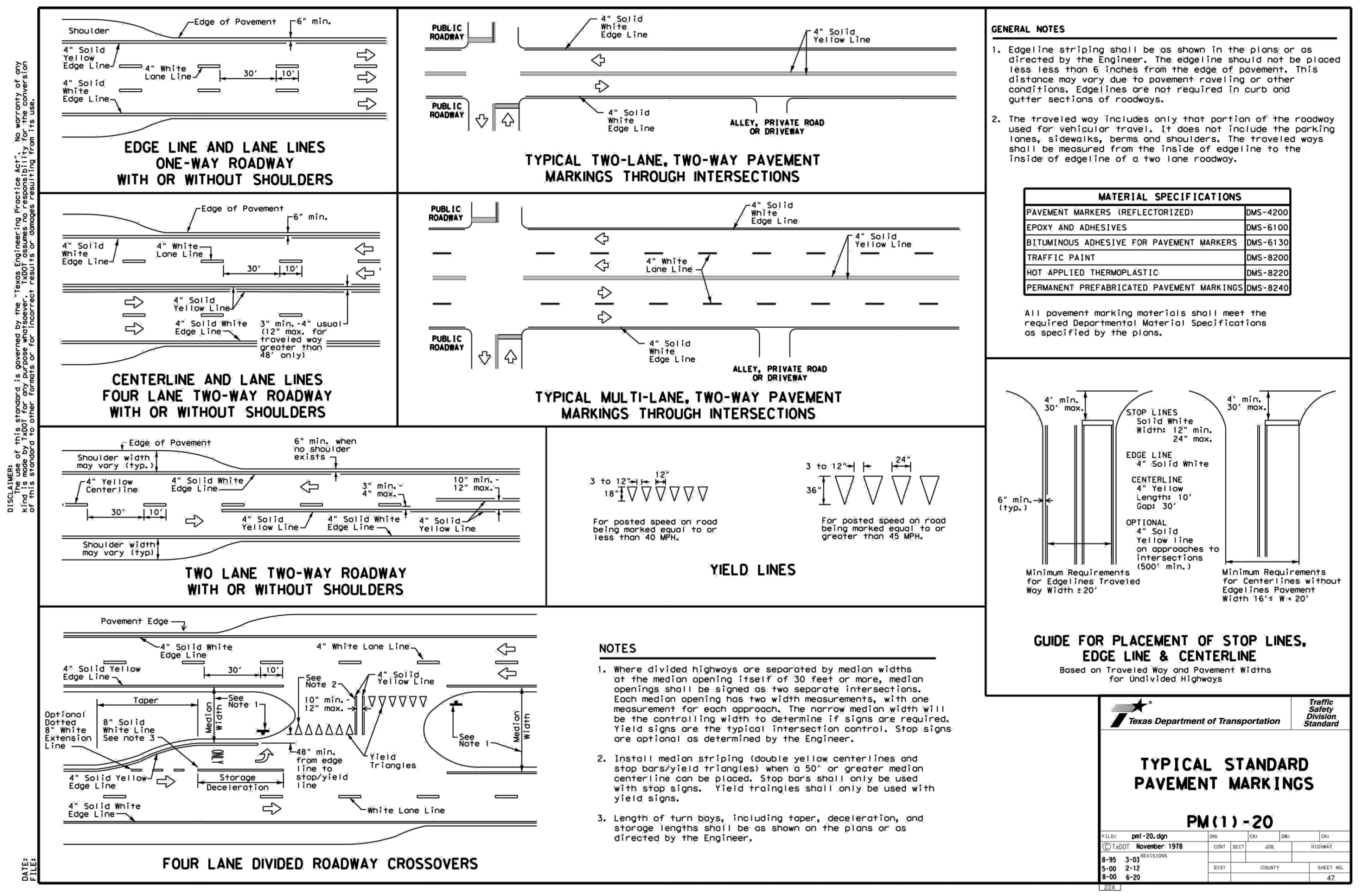
3546 IH 35 N., GEORGETOWN, TX 78626

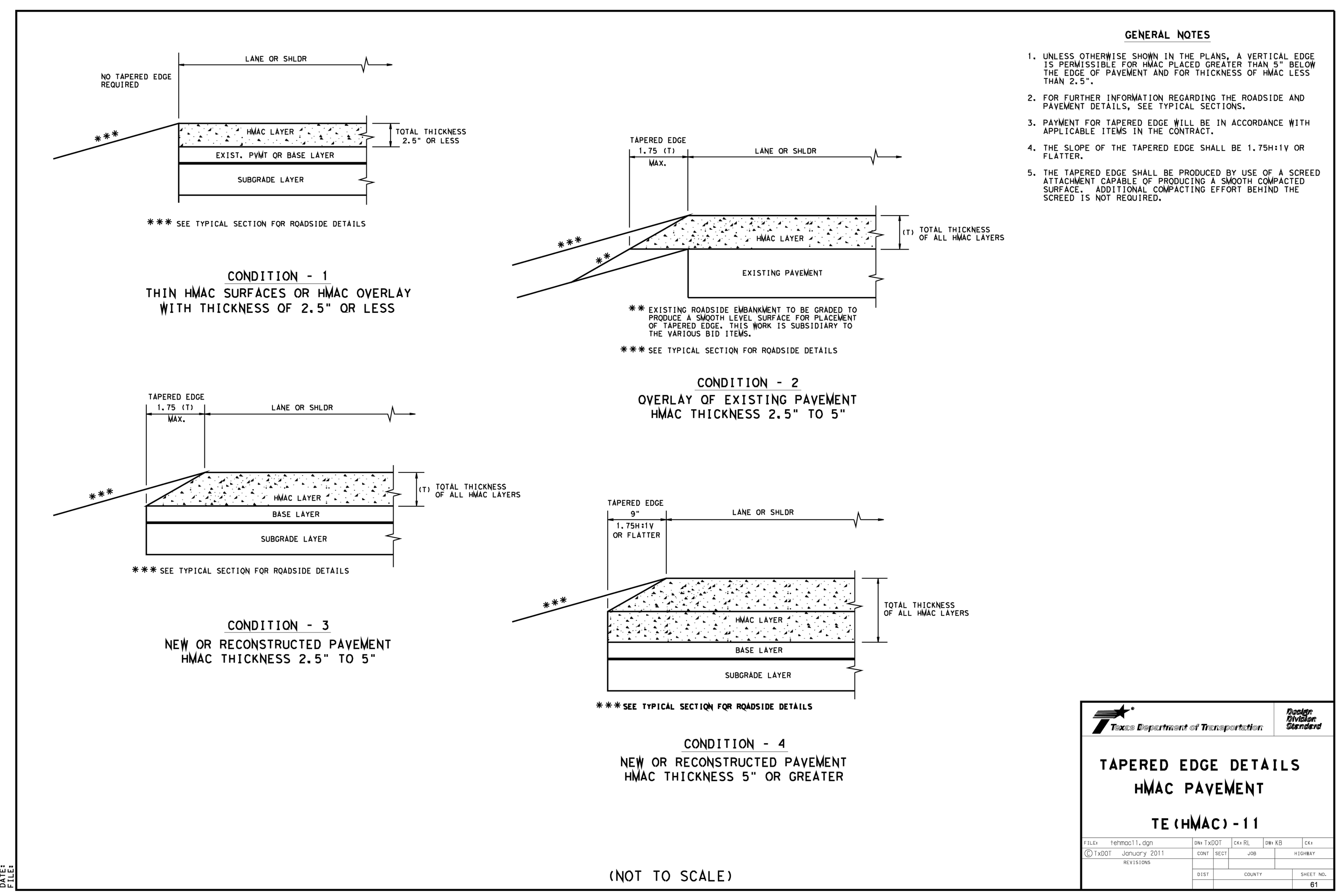
PROJECT NO. 1154-001

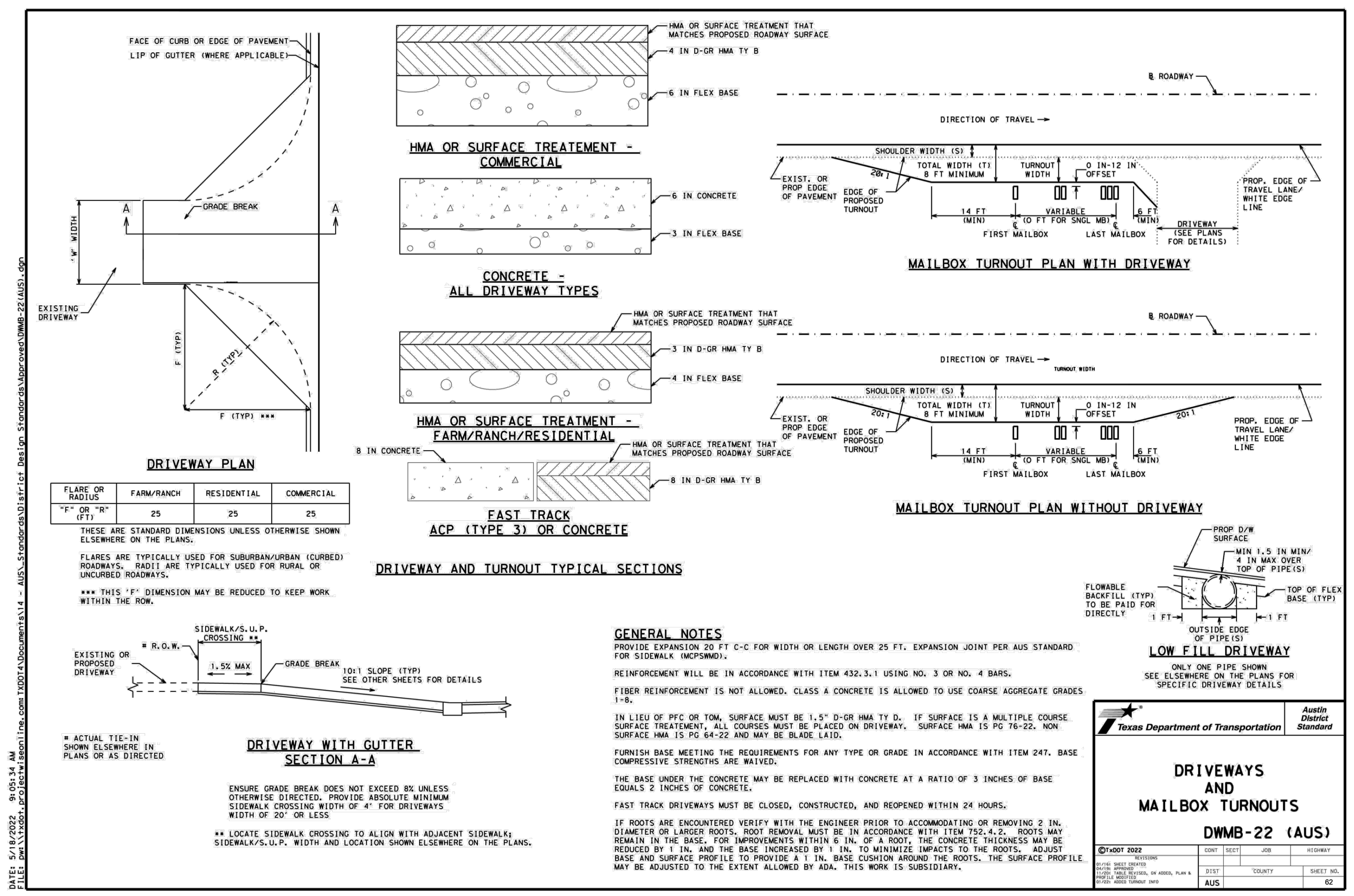
DRAWING NO.

SHEET 12 OF 46









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NO.	REVISION	DATE

4.9.2024

MATTHEW A. DRINGENBERG 114250 LICENSED PROFESSIONAL ENGINEER

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DRAWN BY: T.J.B.

CHECKED BY: A.C.K

TXDOT DETAILS (1 OF 3)

HANWHA TEXAS PLANT

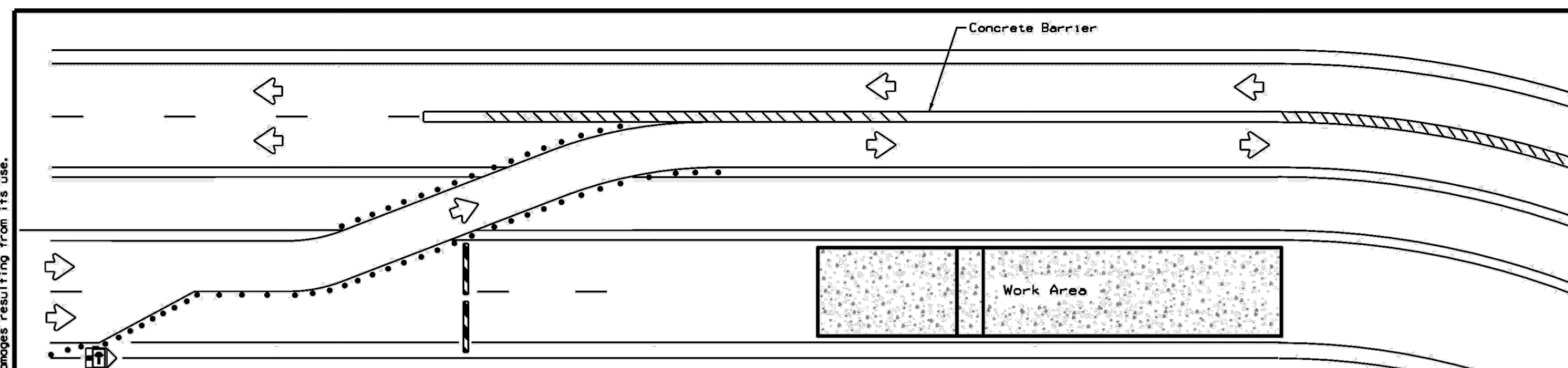
3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001

DRAWING NO.

SHEET 13 OF 46

O:\CompanyData\Clients\1154 - Headwater\001-23_Dry Berry Creek Warehouse Development\CAD\Sheets\1154-001_TxDOT.dwg ~ Layout: "TXDOT DETAILS (1)" ~ Tue, Apr 09, 2024, 3:50pm, By: matt.dringenberg



LEGEND	
	Type 3 Barricade
	Channelizing Devices
	Trailer Mounted Flashing Arrow Board
	Sign
	Safety glare screen

DEPARTMENTAL MATERIAL SPECIFICATIONS	
SIGN FACE MATERIALS	DMS-8300
DELINEATORS AND OBJECT MARKERS	DMS-8600
MODULAR GLARE SCREENS FOR HEADLIGHT BARRIER	DMS-8610

Only pre-qualified products shall be used. A copy of the Compliant Work Zone Traffic Control Devices List" CWZTCD)describes pre-qualified products and their sources and may be found at the following web address:

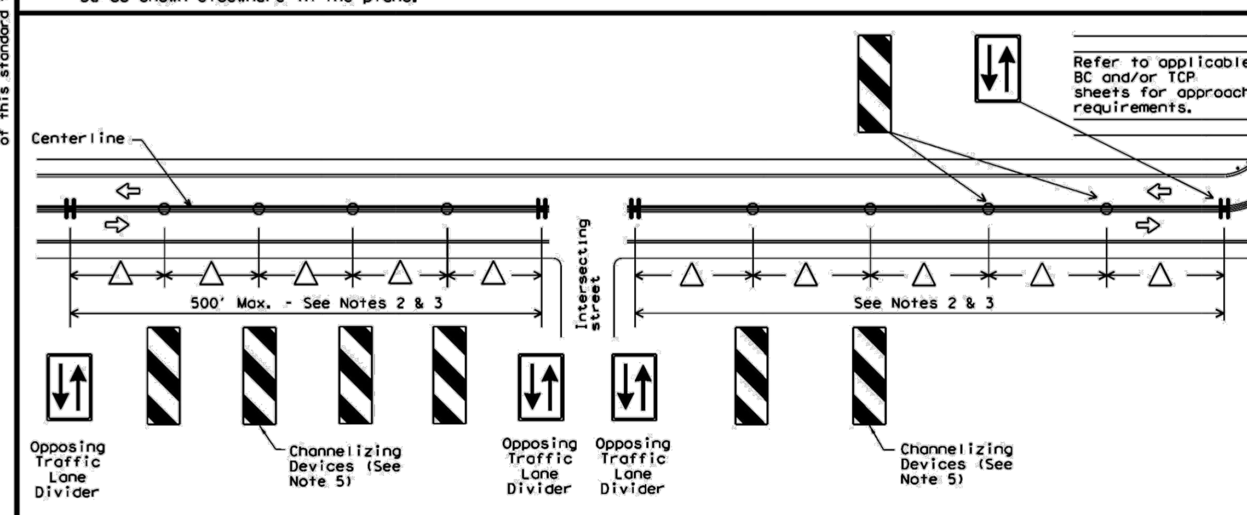
http://www.txdot.gov/business/resources/producer-list.html

NOTES:

1. Length of Safety Glare screen will be specified elsewhere in the plans.
2. The cumulative nominal length of the modular safety glare screen units shall equal the length of the individual sections of temporary concrete traffic barrier on which they are installed so the joint between barrier sections will not be spanned by any one safety glare screen unit.
3. Screen Panel/blades will be designed such that reflective sheeting conforming with Departmental Material Specification DMS-8300, Sign Face Materials, Type B or C Yellow, minimum size of 2 inches by 12 inches can be attached to the edge of the panel/blade. The sheeting shall be attached to one glare screen panel/blade per section of concrete barrier not to exceed a spacing of 30 feet. Barrier reflectors are not necessary when panel/blades are installed with reflective sheeting as described.
4. Payment for these devices will be under statewide Special Specification "Modular Glare Screens for Headlight Barrier."
5. This detail is only intended to show types of locations where Glare Screens would be appropriate. Required signing and other devices shall be as shown elsewhere in the plans.

BARRIER DELINEATION WITH MODULAR GLARE SCREENS

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.



VERTICAL PANELS & OPPOSING TRAFFIC LANE DIVIDERS (OTLD)
SEPARATING TWO-WAY TRAFFIC ON NORMALLY DIVIDED HIGHWAYS

NOTES:

1. When two-lane, two way traffic control must be maintained on one roadway of a normally divided highway, opposing traffic shall be separated with either temporary traffic barriers, channelizing devices, or a temporary raised island throughout the length of the two way operation. The above Typical Application is intended to show the appropriate application of channelizing devices when they are used for this purpose. This is not a traffic control plan. If this detail is to be used for other types of roads or applications, those locations should be stated elsewhere in the plans.
2. △ Space devices according to the Tangent Spacing shown on the Device Spacing table on BC(9) but not exceeding 100'.
3. Every fifth device should be an OTLD except when spaced closer to accommodate an intersection. An OTLD should be the first device on each side of intersecting streets or roads.
4. Locations where surface mount bases with adhesives or self-righting devices will be required in order to maintain them in their proper position should be noted elsewhere in the plans.
5. Channelizing devices are to be vertical panels, 42" cones or tubular markers that are at least 36" tall. Tubular markers used to separate traffic should have a rubber base weighing at least 30 pounds. Tubular markers that are 42" tall or more shall have four bands of reflective material as detailed for 42" cones on BC(10). Tubular markers less than 42" but at least 36" tall shall have three bands of 3" wide white reflective material spaced 2" apart. Reflective material shall meet DMS-8300, Type A.

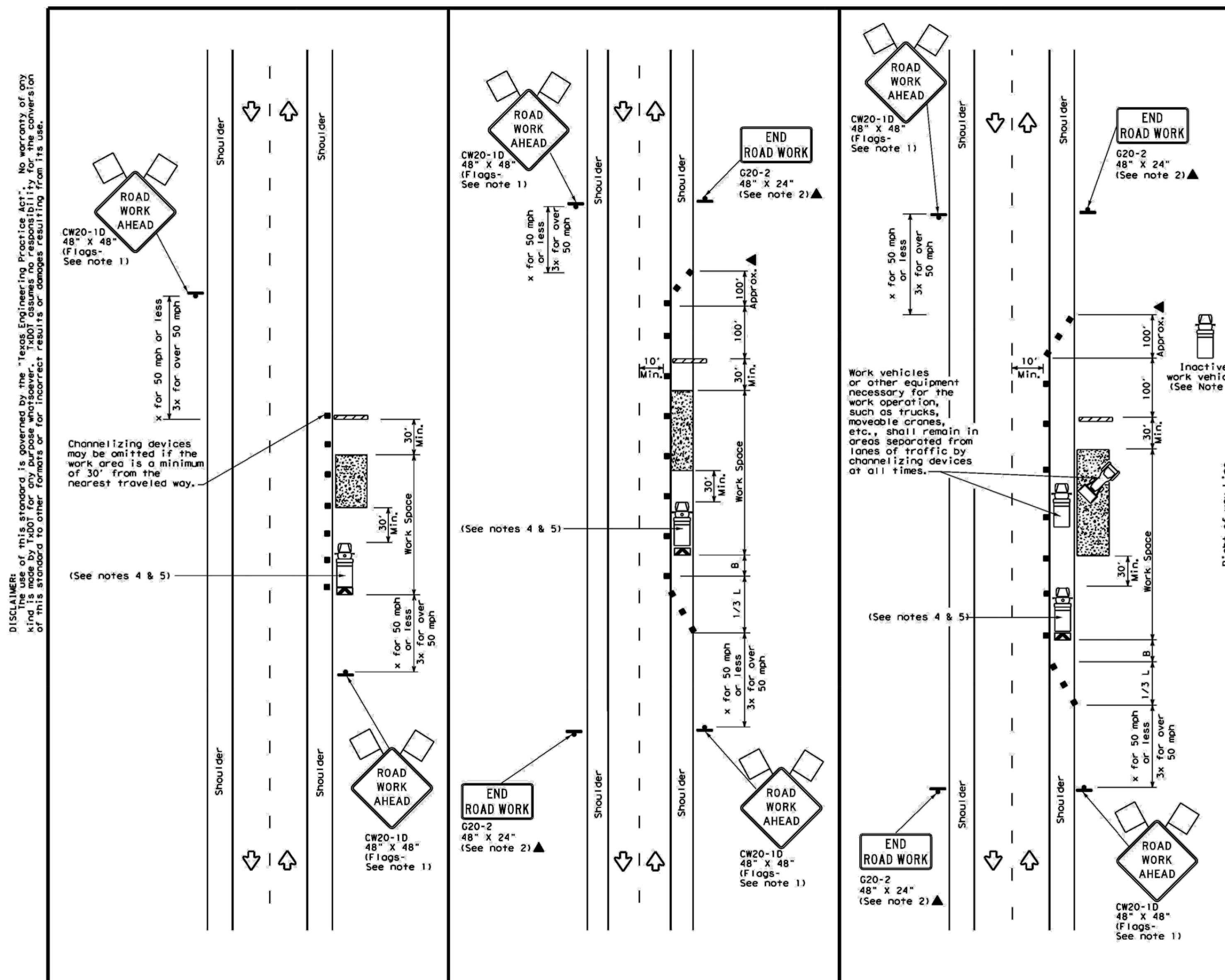
Texas Department of Transportation — Traffic Operations Division Standard

TRAFFIC CONTROL PLAN TYPICAL DETAILS

WZ(TD)-17

FILE: wztd-17.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-98 2-17 3-03 7-13	DIST	COUNTY		SHEET NO. 46

110



TCP (2-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads

TCP (2-1b)

WORK SPACE ON SHOULDER
Conventional Roads

TCP (2-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L = WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only

** Taper lengths have been rounded off.
L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓	✓	✓

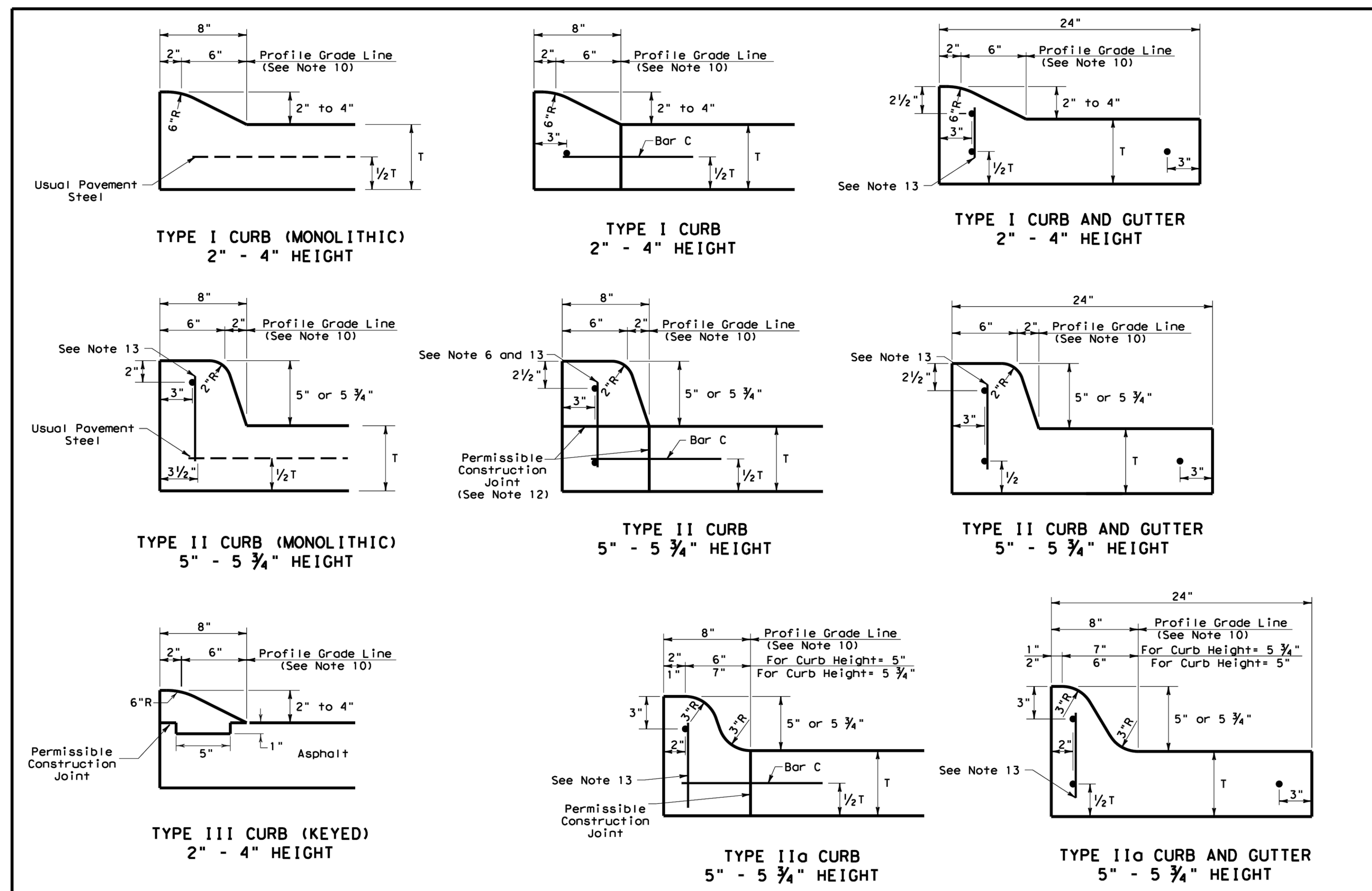
GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated in the plans, or for routine maintenance work, when approved by the Engineer.
3. Stockpiled material should be placed a minimum of 30 feet from nearest traveled way.
4. Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
5. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.
6. See TCP(5-1) for shoulder work on divided highways, expressways and freeways.
7. Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
8. CW21-5 "SHOULDER WORK" signs may be used in place of CW20-1D "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.

Texas Department of Transportation — Traffic Operations Division Standard

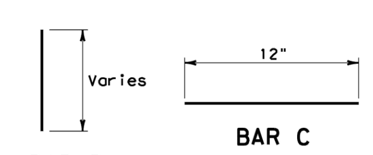
TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK

TCP(2-1)-18

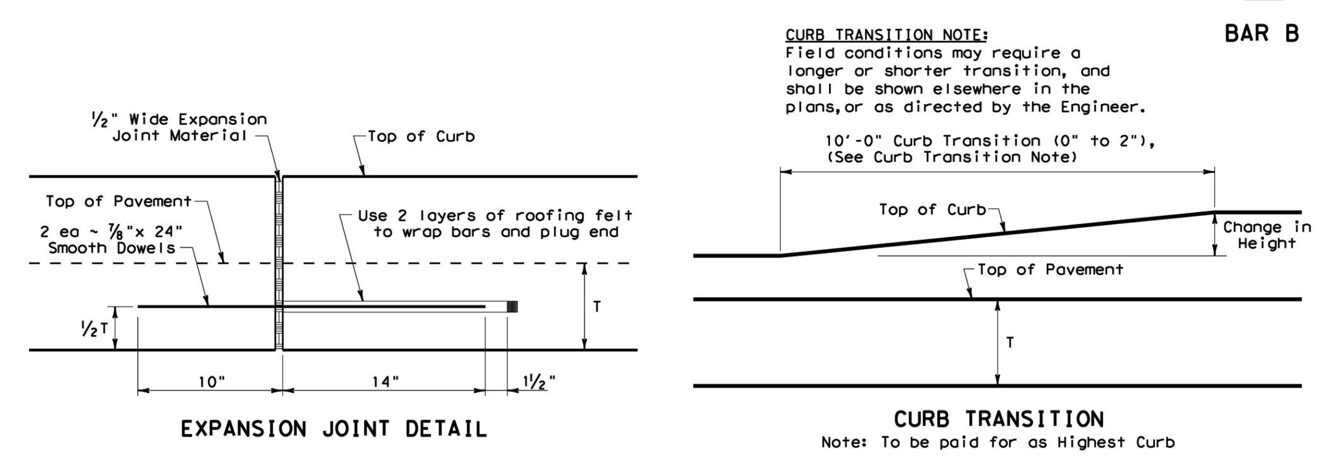


GENERAL NOTES

1. All materials and construction shall be in accordance with Item 529, "Concrete Curb, Gutter, and Combined Curb and Gutter."
2. Concrete shall be Class A.
3. When reinforcing bars are used, they shall be No.4 unless otherwise shown. The use of fiber reinforced concrete in lieu of reinforcing steel is acceptable. Use fibers meeting the requirements of DMS 4550, "Fibers for Concrete," and dose fibers in accordance with Material Producers List (MPL) "Fibers for Class A and B Concrete Applications."
4. Round exposed sharp edges with a rounding tool, to a minimum radius of ¼ inch.
5. All existing curbs and driveways to be removed shall be sawed or removed at existing joints.
6. Where concrete curb is to be placed on existing concrete pavement, Bar B may be drilled and grouted in place, or may be inserted into fresh concrete.
7. Expansion and contraction joints shall be constructed to match pavement joints in all curbs and curb and gutter adjacent to jointed concrete pavement. Where placement of curb or curb and gutter is not adjacent to concrete pavement, expansion joints shall be provided at structures, curb returns at streets, and at locations directed by The Engineer.
8. Vertical and horizontal dowel bars and transverse reinforcing bars shall be placed at four feet C~C.
9. Dimension 'T' shown is the thickness of concrete pavement. When curb is installed adjacent to flexible pavement dimension 'T' is 8" maximum.
10. Usual profile grade line. Refer to typical sections and plan-profile sheets for exact locations.
11. One-half inch expansion joint material shall be provided where curb or curb and gutter is adjacent to sidewalk or riprap.
12. When horizontal permissible construction joints are used, the longitudinal pavement steel shall be placed in accordance with pavement details shown elsewhere in the plans. Reinforcing steel for curb section shall then conform to that required for concrete curb.
13. Bar B placement as needed (typically at four ft. C-C) to support curb reinforcing steel during concrete placement.



CURB TRANSITION NOTE: Field conditions may require a longer or shorter transition, and shall be shown elsewhere in the plans,or as directed by the Engineer.



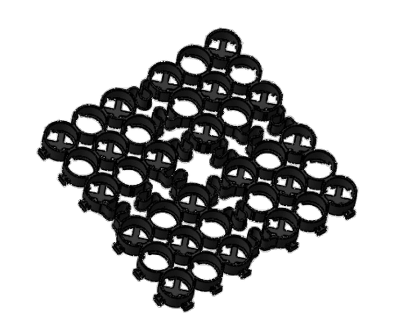
Texas Department of Transportation — Design Division Standard

CONCRETE CURB AND CURB AND GUTTER

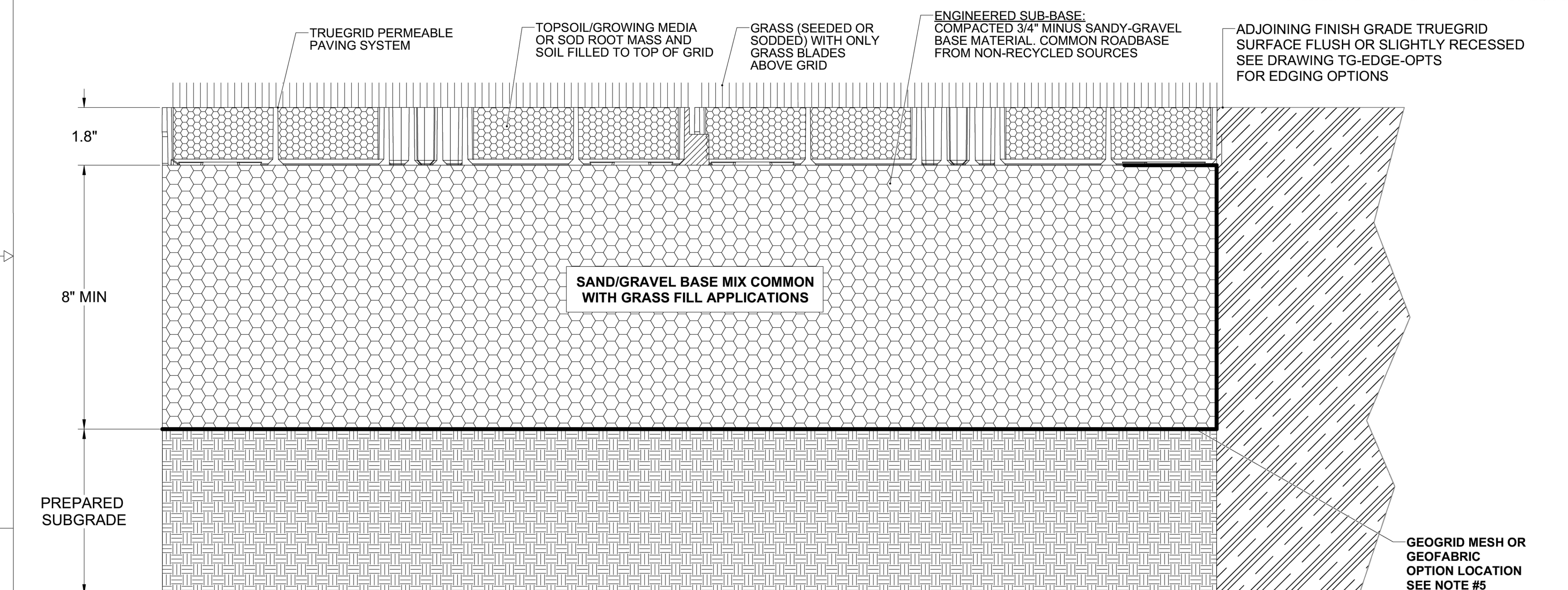
CCCG-22

NOTES:

1. SUB-BASE DEPTH AND PREPARATION IS DEPENDENT ON SITE CONDITIONS PLUS LOADING REQUIREMENTS.
2. TRUEGRID PRO PLUS PRODUCTS ARE SUFFICIENTLY RATED FOR H-20 /HS-20 LOADING AND GREATER.
3. SEEDING METHOD: FILL SOIL/GROWING MEDIA TO TOP OF GRID. APPLY SEEDING OR HYDROSEEDING PER MANUFACTURERS' (BY OTHERS) REQUIRED APPLICATION RATES.
4. SOD INSTALLATION METHOD: FILL TOPSOIL/GROWING MEDIA HALF-WAY (~1") WITHIN TRUEGRID AND PRESS IN SOD SO THAT TOP OF GRID IS AT SOIL/ROOT LEVEL AND ONLY THE GRASS BLADES EXTEND ABOVE THE GRID.
5. GEOGRID MESH OR GEOFABRIC MAY BE REQUIRED BETWEEN SUBGRADE & SUBBASE FOR CERTAIN SOILS AND SITE SPECIFIC REQUIREMENTS.
6. NO STAKING NECESSARY WITH TRUEGRID PRO PLUS WHEN SLOPE IS BELOW 20 DEGREES. ASSESS PROJECT, AS NEEDED.
7. TRUEGRID PRO PLUS IS ADA COMPLIANT WITH PROPER FILL MATERIAL.
8. ALTERNATIVE ENGINEERED SUB-BASE MIXES CAN BE USED PROVIDED THEY PROMOTE GRASS GROWTH, HAVE ADEQUATE VOID SPACE FOR DRAINAGE, AND PROVIDE REQUIRED STRUCTURAL SUPPORT.
9. THIS CROSS SECTION IS FOR INFORMATION ONLY.



TRUEGRID BLOCK REFERENCE VIEW
PREASSEMBLED & DELIVERED IN 4' X 4' SHEET, RECONFIGURED AS NEEDED.NO EXTRA TOOLING OR ACCESSORIES REQUIRED



GRASS FILL HEAVY LOAD TRUEGRID PRO PLUS

APPLICATION:

HEAVY LOAD PARKING LOT, FIRE LANES, EQUIPMENT YARD, SERVICE ROADS.

REV	REVISION	DRAWN	CHECKED	APPROVED	DATE
01	UPDATED NOTES, AND FLAG NOTES	JT	JT	CR	8/3/2020

MANUFACTURED IN NORTH AMERICA — 1-855-355-GRID (4743)

TRUEGRID — TRUEGRID GRASS FILL INSTALLATION HEAVY LOAD — TGFB-GRS-HL — REV 01

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1-800-245-4545

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4.9.2024 — STATE OF TEXAS — MATTHEW A. DRINGENBERG — 114250 — LICENSED PROFESSIONAL ENGINEER

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DRAWN BY: T.J.B.

CHECKED BY: A.C.K

TXDOT DETAILS (2 OF 3)

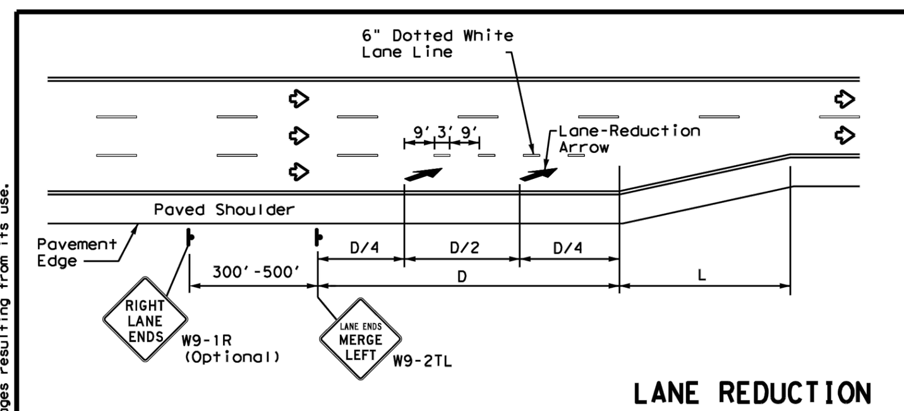
HANWHA TEXAS PLANT

3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001

DRAWING NO.

SHEET 14 OF 46



LANE REDUCTION

NOTES

1. Lane reduction pavement markings are used where the number of through lanes is reduced because of narrowing of the roadway or because of a section of on-street parking in what would otherwise be a through lane. For Texas Super 2 Passing Lanes, see TS2(PL) standard sheets.
2. On divided highways, an additional RIGHT LANE ENDS (W9-1R) sign may be installed in the median aligned with the W9-1R sign on the right side of the highway.
3. Lane reduction arrows are required for speeds of 45 mph or greater. An optional third lane reduction arrow may be added based on engineering judgement. If used, the optional third lane reduction arrow should be centered between the first and last lane reduction arrows.
4. For lane reductions on Freeways and Expressways, signing shall conform to the TxDOT Freeway Signing Handbook.

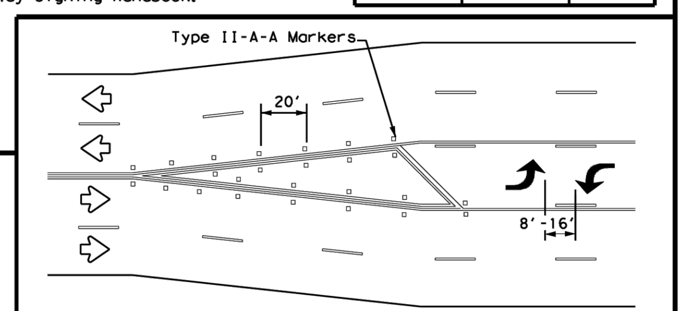
ADVANCED WARNING SIGN DISTANCE (D)		
Posted Speed	D (ft)	L (ft)
30 MPH	460	$L = \frac{WS^2}{60}$
35 MPH	565	
40 MPH	670	
45 MPH	775	L=WS
50 MPH	885	
55 MPH	990	
60 MPH	1,100	
65 MPH	1,200	
70 MPH	1,250	
75 MPH	1,350	

GENERAL NOTES

1. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows are as shown in the Standard Highway Sign Designs for Texas.
2. When lane-use words and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane.
3. Use raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.
4. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer. See Chapter 3 of the Roadway Design Manual for additional information on turning lanes or storage lengths.

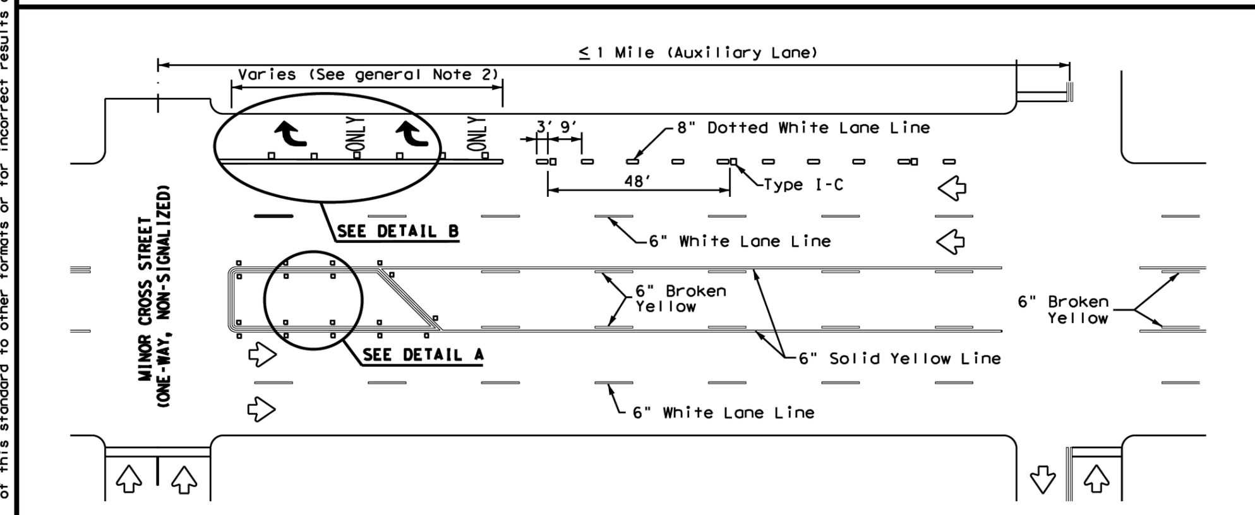
MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.

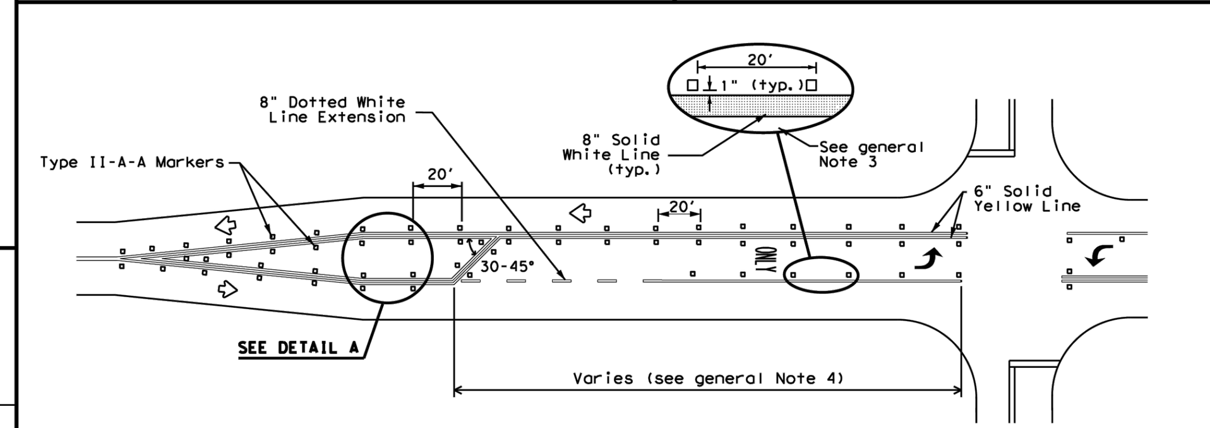


A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

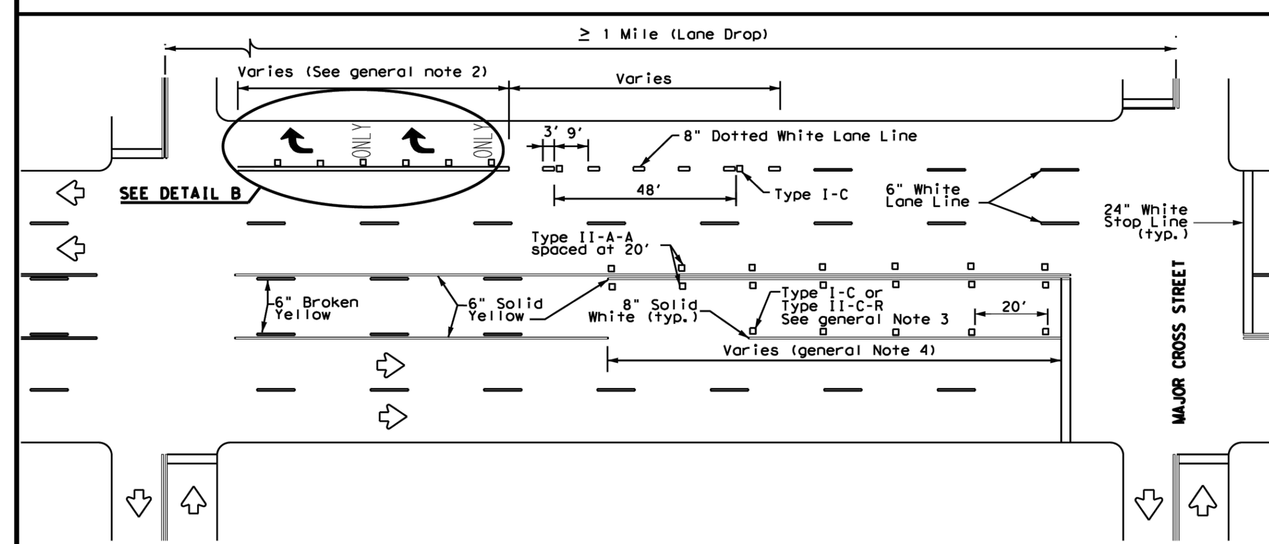
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY



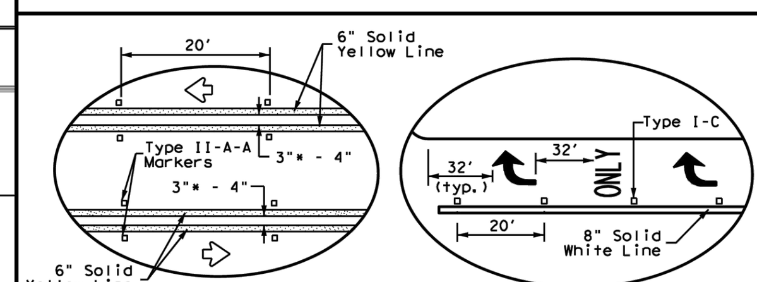
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



TYPICAL TWO-LANE ROADWAY INTERSECTION WITH LEFT TURN BAYS



TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP



DETAIL A DETAIL B

* 2" minimum allowed for restripe projects when approved by the Engineer.

Texas Department of Transportation — Traffic Safety Division Standard

TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS PM(3)-22

FILE: pm3-22.dgn	DN:	CK:	DW:	CK:
© TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-98 3-03 6-20 5-00 2-10 12-22 8-00 2-12	DIST	COUNTY		SHEET NO.

22C

TRUEGRID

1-855-355-GRID (4743)

TRUEGRID® PRO Plus
Manufacturer's Product Specification Sheet

Dimensions:	24" x 24" x 1.8" (4 sq/ft)
Pre-Assembled:	16 sq/ft per layer (4' x 4' sheet) (4 grids per layer)
Cell Width:	3-3/16"
Weight:	5.22 lbs
Permeability:	100% w/clean, uniform stone
Product Porosity:	90% open
Compressive strength:	17,729 psi filled
Material:	Recycled High Density Polyethylene (100% post-consumer)
Color:	Black with UV Stabilizer
Temperature Range:	Dimensionally Stable for -58F to 194F
Moisture Absorption:	.01%
Environmental Compatibility:	Nontoxic, harmless to oils, plants, animals, and microorganisms. Inert material, groundwater neutral
Installation Speed:	1000 sq/ft per man hour

Other features of TRUEGRID

- Highly resistant to oils, gasoline, acids, salt, ammonia, and alcohol
- May be saw cut
- Patented design yields ultimate hoop strength
- Circular elements provide multi-directional crush and shear strength
- Flexible links allow expansion and contraction depending on environmental conditions
- Built in X-Anchors allows weight of filler to hold grid down without any extra staking
- Interlocking connectors

Page 1 TRUEGRID Pavers: 6110 Abbott Dr, Omaha, NE 68110

TRUEGRID

1-855-355-GRID (4743)

Ground Preparation: **Depends upon site condition and local conditions.**

Suggested Sub-base: 3/4" – 1" diameter clean/washed, angular gravel.
Depth of this layer should be a minimum of 6"- 8". Deeper for heavier loads.
For additional drainage, increase depth of sub-base.
Class 2 road base (crushed concrete) is also a typical sub-base material.
Gravel/sandy soil mix (60/40) is also common for grass fill applications.
Level sub-base before laying TrueGrid.

Installation: Layout and snap together pre-assembled sheets. (4 pcs per layer = 16 sq/ft)
If body weight does not level the grids, use plate vibrator or heavy cylinder to level.

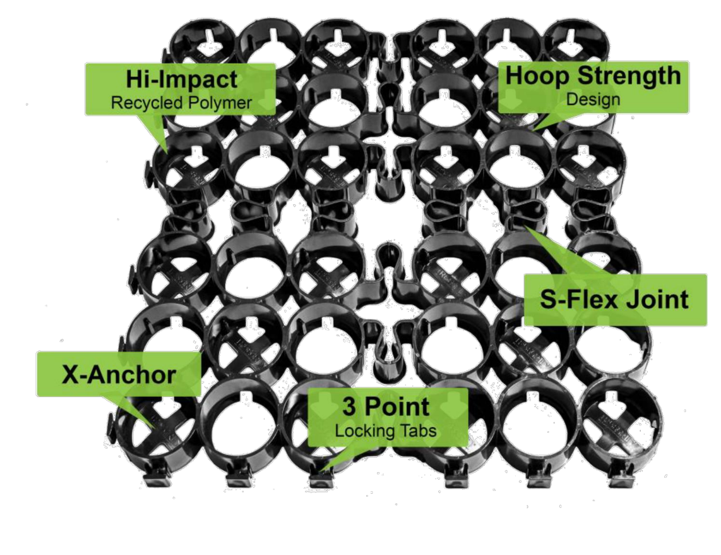
Backfill: Any angular or round medium may be used. Fill cells with filler of choice.
5/8" or 3/4" diameter typical.

- TRUEGRID may be cut on site
- Pre-cutting is not required

Angle grinder, circular saw, compass saw, or handsaw are all options for cutting TRUEGRID.

Delivery:

- **Pallet content:** 800 sq/ft = 50 layers per pallet = 200 pcs
- **Pallet dimensions:** 48" x 48" x 95"
- **Approximate pallet weight:** 1,050 lbs
- **Truckload:** 24 pallets or 19,200 sq/ft



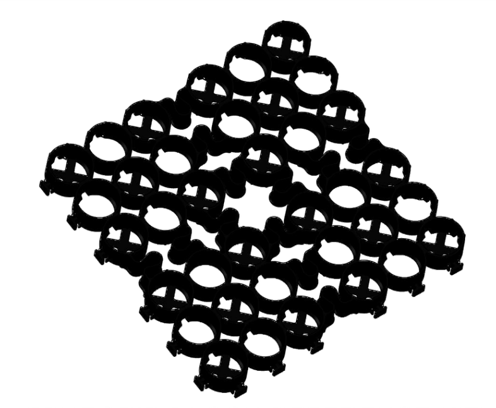
For more info on TRUEGRID Please visit our website:

www.truegridpaver.com

Page 2 TRUEGRID Pavers: 6110 Abbott Dr, Omaha, NE 68110

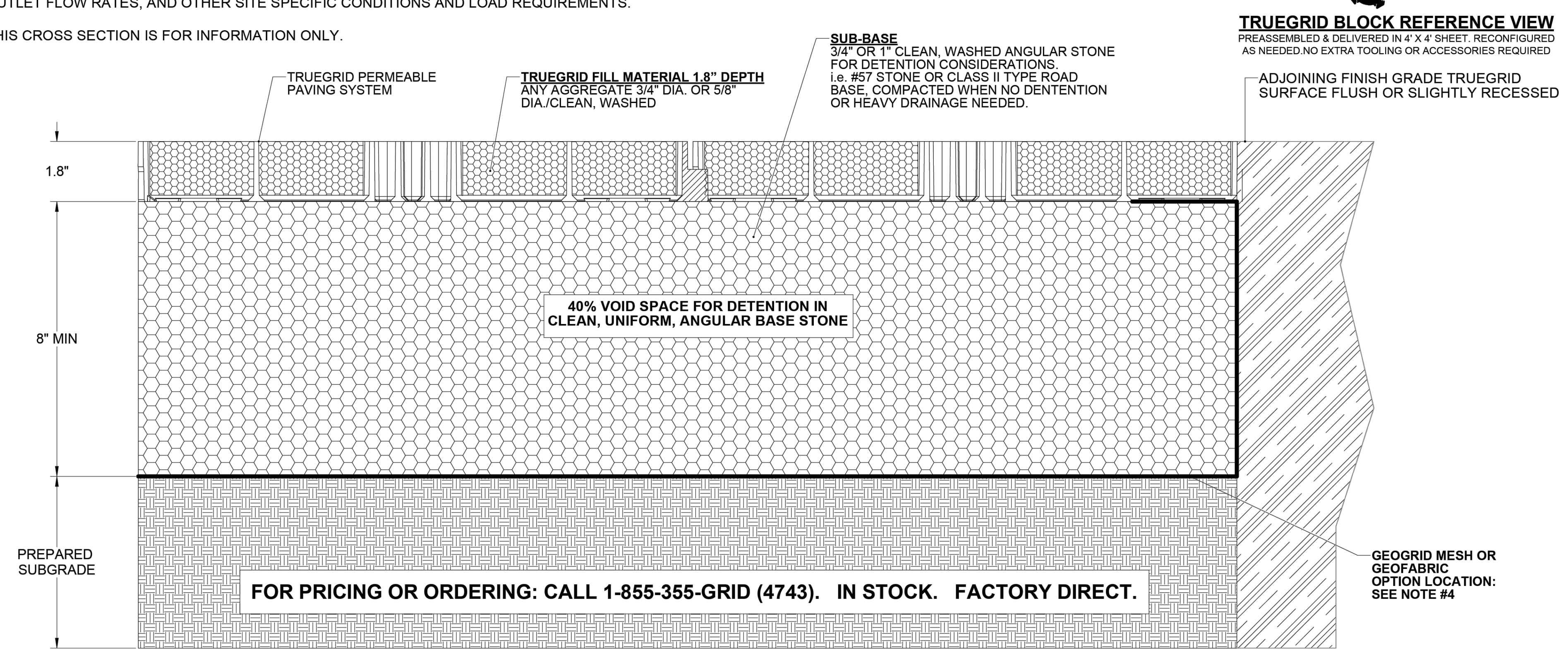
NOTES:

1. SUB-BASE DEPTH AND PREPARATION IS DEPENDENT ON SITE CONDITIONS PLUS LOADING REQUIREMENTS.
2. TRUEGRID PRO PLUS PRODUCTS DESIGNED FOR LOAD CAPACITIES OF 120,000 LBS PER SQ. FT. TRUEGRID PRODUCTS STRENGTHEN WITH FILL MATERIAL.
3. TRUEGRID PRO PLUS PRODUCTS ARE SUFFICIENTLY RATED FOR H-20 /HS-20 LOADING AND GREATER.
4. GEOGRID MESH OR GEOFABRIC MAY BE REQUIRED BETWEEN SUB-GRADE & SUB-BASE FOR CERTAIN SOILS AND SITE SPECIFIC REQUIREMENTS.
5. INCREASE SUB-BASE DEPTH FOR INCREASED STORM WATER DETENTION.
6. NO STAKING NECESSARY WITH TRUEGRID PRO PLUS WHEN SLOPE IS BELOW 10 DEGREES. ASSESS PROJECT, AS NEEDED.
7. FINAL ENGINEERED CROSS SECTION AGGREGATES AND DEPTH SHOULD ALLOW FOR EXPECTED INFILTRATION RATES, STORAGE CAPACITIES, OUTLET FLOW RATES, AND OTHER SITE SPECIFIC CONDITIONS AND LOAD REQUIREMENTS.
8. THIS CROSS SECTION IS FOR INFORMATION ONLY.



TRUEGRID BLOCK REFERENCE VIEW

PREASSEMBLED & DELIVERED IN 4' X 4' SHEET. RECONFIGURED AS NEEDED.NO EXTRA TOOLING OR ACCESSORIES REQUIRED



FIRELANE - GRAVEL FILL TRUEGRID PRO PLUS

REV	REVISION	DRAWN	CHECKED	APPROVED	DATE
04	UPDATED TRUEGRID STANDARDS	JT	JT	CW	9/20/2017

1-855-355-GRID (4743) — MADE IN U. S. A. — TRUEGRIDPAVER.com

CLIENT / PROJECT

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES

PROPRIETARY DESIGN RIGHTS NOTICE: THIS DESIGN WAS ORIGINATED BY AND IS THE EXCLUSIVE PROPERTY OF TRUEGRID. IT IS DISCLOSED IN CONFIDENCE WITH THEUNDERSTANDING THAT NO REPRODUCTIONOR OTHER USE OF THE INFORMATION ISAUTHORIZED WITHOUT SPECIFIC AGREEMENT IN WRITING BY TRUEGRID.

DO NOT SCALE DRAWING

APPROVAL INFORMATION	
DRAWN BY: J. Thethy	DATE: 6/11/2015
CHECKED BY: J. Thethy	DATE: 6/12/2015
APPROVED BY: C. White	DATE: 6/12/2015
WEIGHT:	

TRUEGRID — True to your project. True to the environment.

TRUEGRID GRAVEL FILL INSTALLATION HEAVY LOAD FIRE LANE

SIZE D — DRAWING NUMBER: TG-GRV-HL-FL — REV 04 — SCALE 1:1.5 — SHEET 1 OF 1

TEXAS ONE CALL SYSTEM
1-800-245-4545

UNDER PENALTY OF LAW, THE CONTRACTOR IS REQUIRED TO CONTACT THE TEXAS ONE CALL SYSTEM AT LEAST 48 HOURS BEFORE STARTING EXCAVATION.

CAUTION - ELECTRICITY PRESENT

THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS THAT ENTER OR WORK ON THIS PROJECT ARE RESPONSIBLE FOR LOCATING, USING ONE-CALL OR THE ELECTRIC UTILITIES THEMSELVES, ALL OVERHEAD AND UNDERGROUND ELECTRICAL OF ANY NATURE AND FOR SAFEGUARDING ALL PERSONNEL ON THIS PROJECT, INCLUDING ANY OFF-SITE WORK AREAS SHOWN ON THE PLAN, FROM ANY INTERFERENCE WITH THE ELECTRIC LINES OR FROM DAMAGING, DIGGING UP OR UNCOVERING THE ELECTRIC LINES, GETTING A LADDER IN HARMS WAY OR ANY OTHER ACTIVITY OF ANY NATURE THAT COULD HARM ANY INDIVIDUAL IN ANY MANNER. THIS RESPONSIBILITY HEREBY REMOVES THE ENGINEER AND THE OWNER FROM ANY LIABILITY OF ANY NATURE.

NO.	REVISION	DATE

STATE OF TEXAS — MATTHEW A. DRINGENBERG — 114250 — LICENSED PROFESSIONAL ENGINEER — 4.9.2024

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY MATTHEW A. DRINGENBERG, PE #114250 ON THE DATE INDICATED. ANY ALTERATIONS OF THIS SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

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CENTRAL TEXAS
205 Cimarron Park Loop, Ste. B, Buda TX 78610
P: 512.312.4336

WARNING — IF THIS BAR DOES NOT MEASURE 1", THE DRAWING IS NOT TO SCALE

DRAWN BY: T.J.B.

CHECKED BY: A.C.K

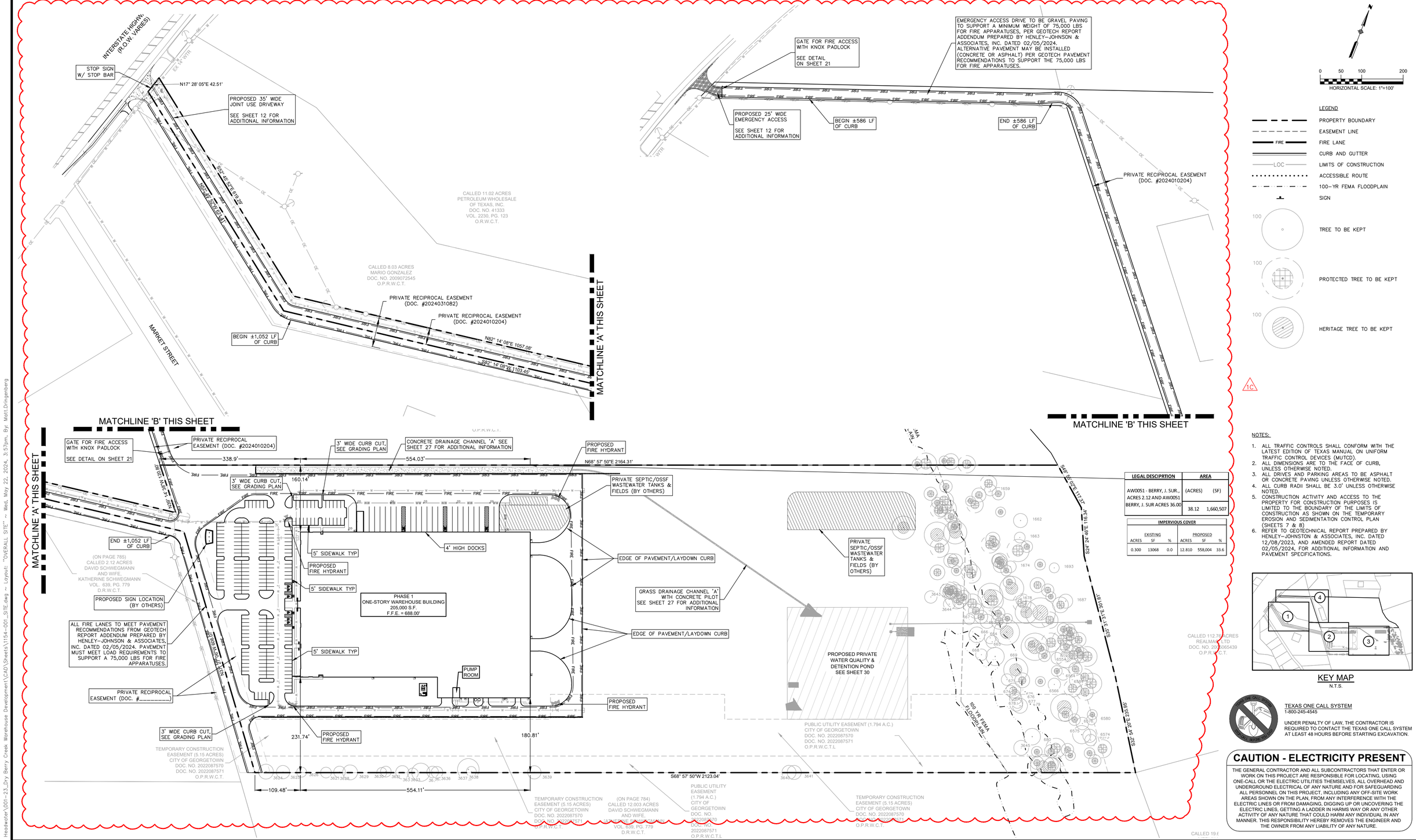
TXDOT DETAILS (3 OF 3)

HANWHA TEXAS PLANT

3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001

DRAWING NO.



LEGAL DESCIPRTION	AREA	
AW0051 - BERRY, J. SUR., ACRES 2.12 AND AW0051 BERRY, J. SUR ACRES 36.00	(ACRES)	(SF)
	38.12	1,660,507

IMPERVIOUS COVER					
EXISTING			PROPOSED		
ACRES	SF	%	ACRES	SF	%
0.300	13068	0.0	12.810	558,004	33.6

0 50 100 200
HORIZONTAL SCALE: 1"=100'

LEGEND

- PROPERTY BOUNDARY
- EASEMENT LINE
- FIRE LANE
- CURB AND GUTTER
- LIMITS OF CONSTRUCTION
- ACCESSIBLE ROUTE
- 100-YR FEMA FLOODPLAIN
- SIGN
- TREE TO BE KEPT
- PROTECTED TREE TO BE KEPT
- HERITAGE TREE TO BE KEPT

1C

NOTES:

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6. REFER TO GEOTECHNICAL REPORT PREPARED BY HENLEY-JOHNSTON & ASSOCIATES, INC. DATED 12/08/2023, AND AMENDED REPORT DATED 02/05/2024, FOR ADDITIONAL INFORMATION AND PAVEMENT SPECIFICATIONS.

KEY MAP
N.T.S.

TEXAS ONE CALL SYSTEM
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NO.	REVISION	DATE
1C	MODIFIED DRIVEWAYS AND PARKING AREAS	05/22/24

5.22.2024

STATE OF TEXAS — MATTHEW A. DRINGENBERG — 114250 — LICENSED PROFESSIONAL ENGINEER

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CENTRAL TEXAS
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P: 512.312.4336

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DRAWN BY: T.J.B.

CHECKED BY: A.C.K

OVERALL SITE PLAN

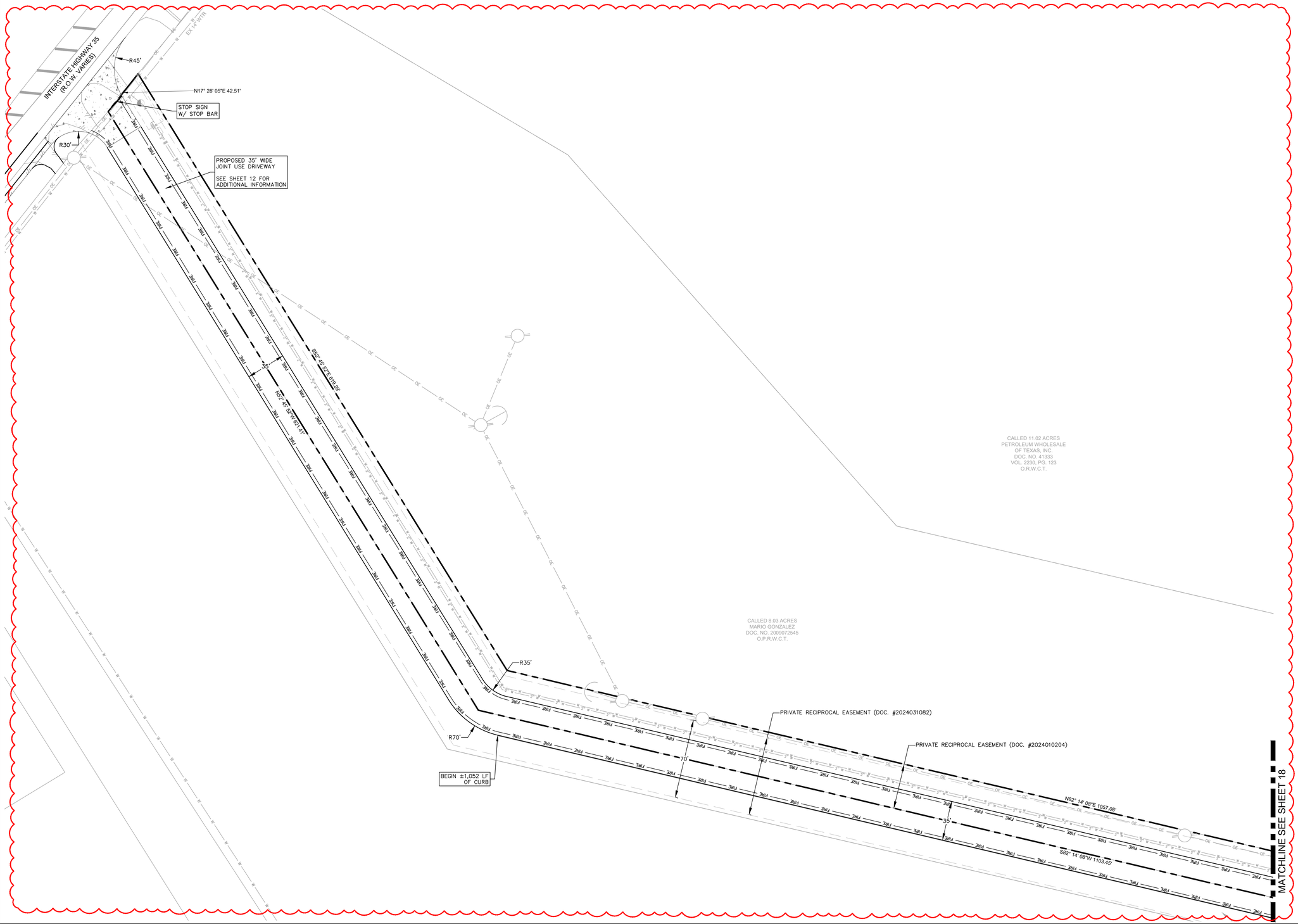
HANWHA TEXAS PLANT

3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001

DRAWING NO. _____

SHEET 16 OF 46



LEGEND

- PROPERTY BOUNDARY
- EASEMENT LINE
- FIRE LANE
- CURB AND GUTTER
- LIMITS OF CONSTRUCTION
- ACCESSIBLE ROUTE
- 100-YR FEMA FLOODPLAIN
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- TREE TO BE KEPT
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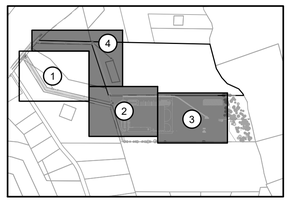

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N.T.S.

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NO.	REVISION	DATE
1C	MODIFIED DRIVEWAYS AND PARKING AREAS	05/22/24

STATE OF TEXAS
MATTHEW A. DRINGENBERG
114250
LICENSED PROFESSIONAL ENGINEER
5.22.2024

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DRAWN BY: T.J.B.

CHECKED BY: A.C.K

DETAILED SITE AND DIMENSIONAL CONTROL PLAN (1 OF 4)

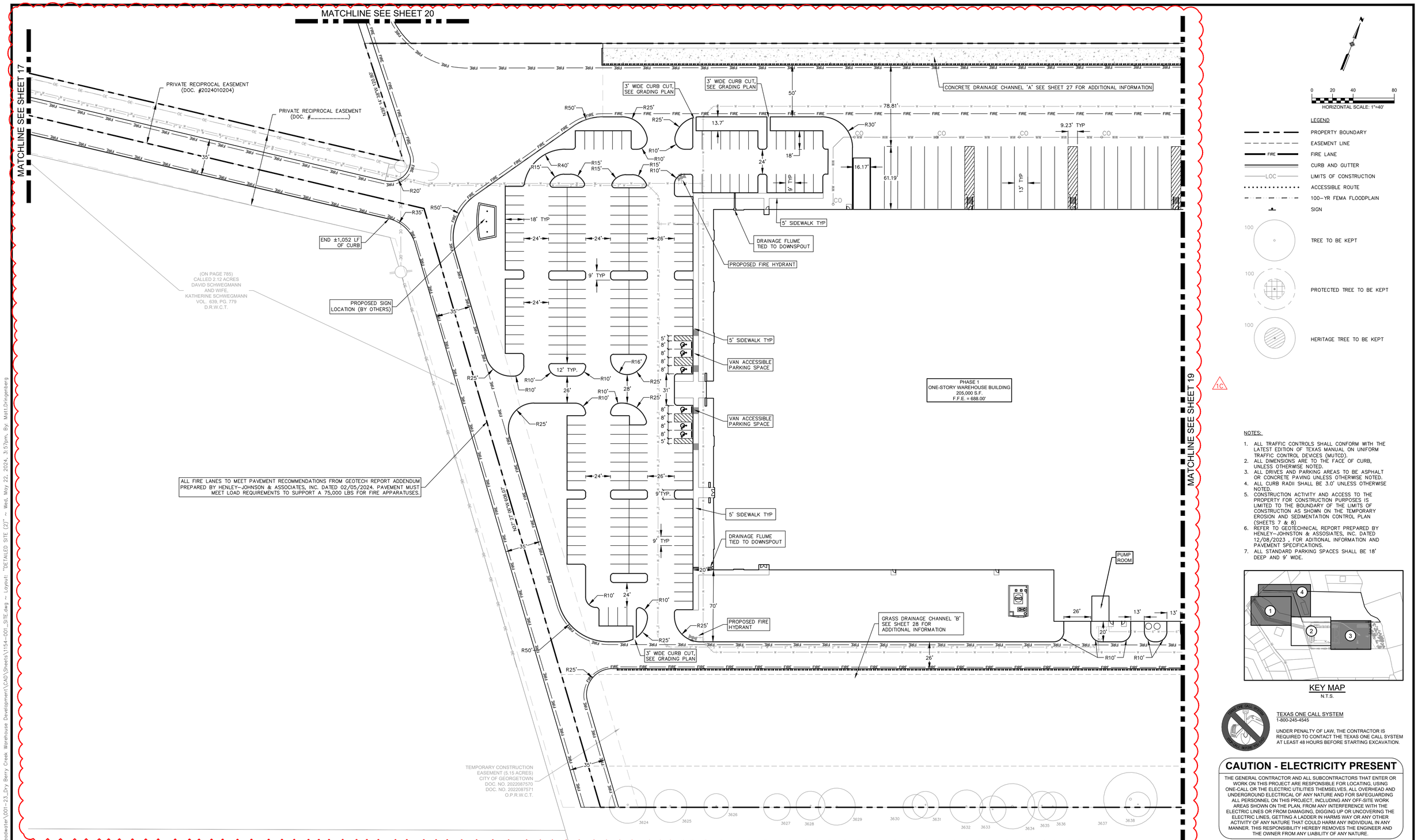
HANWHA TEXAS PLANT

3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001

DRAWING NO.

SHEET 17 OF 46



0 20 40 80
HORIZONTAL SCALE: 1"=40'

LEGEND

- PROPERTY BOUNDARY
- EASEMENT LINE
- FIRE LANE
- CURB AND GUTTER
- LIMITS OF CONSTRUCTION
- ACCESSIBLE ROUTE
- 100-YR FEMA FLOODPLAIN
- SIGN
- TREE TO BE KEPT
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7. ALL STANDARD PARKING SPACES SHALL BE 18' DEEP AND 9' WIDE.

KEY MAP
N.T.S.

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1C	MODIFIED DRIVEWAYS AND PARKING AREAS	05/22/24

STATE OF TEXAS
MATTHEW A. DRINGENBERG
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LICENSED PROFESSIONAL ENGINEER
5.22.2024

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DRAWN BY: T.J.B.

CHECKED BY: A.C.K

DETAILED SITE AND DIMENSIONAL CONTROL PLAN (2 OF 4)

HANWHA TEXAS PLANT

3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001

DRAWING NO. _____

SHEET 18 OF 46

MATCHLINE SEE SHEET 18

CONCRETE DRAINAGE CHANNEL 'A' SEE SHEET 27 FOR ADDITIONAL INFORMATION

N68° 57' 50"E 2164.31'

21.3'

PROPOSED FIRE HYDRANT

PRIVATE SEPTIC/OSSF WASTEWATER TANKS & FIELDS (BY OTHERS)

50'

R30'

R50'

29.76'

R80'

30'

EDGE OF PAVEMENT/LAYDOWN CURB

99.85'

26'

99.73'

13'

20'

R10'

PROPOSED FIRE HYDRANT

GRASS DRAINAGE CHANNEL SEE SHEET 28 FOR ADDITIONAL INFORMATION

PRIVATE SEPTIC/OSSF WASTEWATER TANKS & FIELDS (BY OTHERS)

GRASS DRAINAGE CHANNEL 'A' WITH CONCRETE PILOT SEE SHEET 27 FOR ADDITIONAL INFORMATION

PROPOSED PRIVATE WATER QUALITY & DETENTION POND SEE SHEET 30

PUBLIC UTILITY EASEMENT (1.794 A.C.) CITY OF GEORGETOWN DOC. NO. 2022087570 DOC. NO. 2022087571 O.P.R.W.C.T.L

TEMPORARY CONSTRUCTION EASEMENT (5.15 ACRES) CITY OF GEORGETOWN DOC. NO. 2022087570 DOC. NO. 2022087571 O.P.R.W.C.T.

S68° 57' 50"W 2123.04'

1C

0 20 40 80

HORIZONTAL SCALE: 1"=40'

LEGEND

- PROPERTY BOUNDARY
- EASEMENT LINE
- FIRE LANE
- CURB AND GUTTER
- LOC — LIMITS OF CONSTRUCTION
- ACCESSIBLE ROUTE
- 100-YR FEMA FLOODPLAIN
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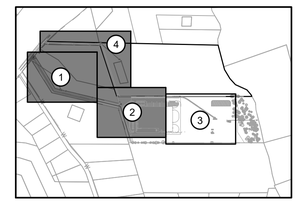

KEY MAP
N.T.S.

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NO.	REVISION	DATE
1C	MODIFIED DRIVEWAYS AND PARKING AREAS	05/22/24

5.22.2024

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DRAWN BY: T.J.B.

CHECKED BY: A.C.K

DETAILED SITE AND DIMENSIONAL CONTROL PLAN (3 OF 4)

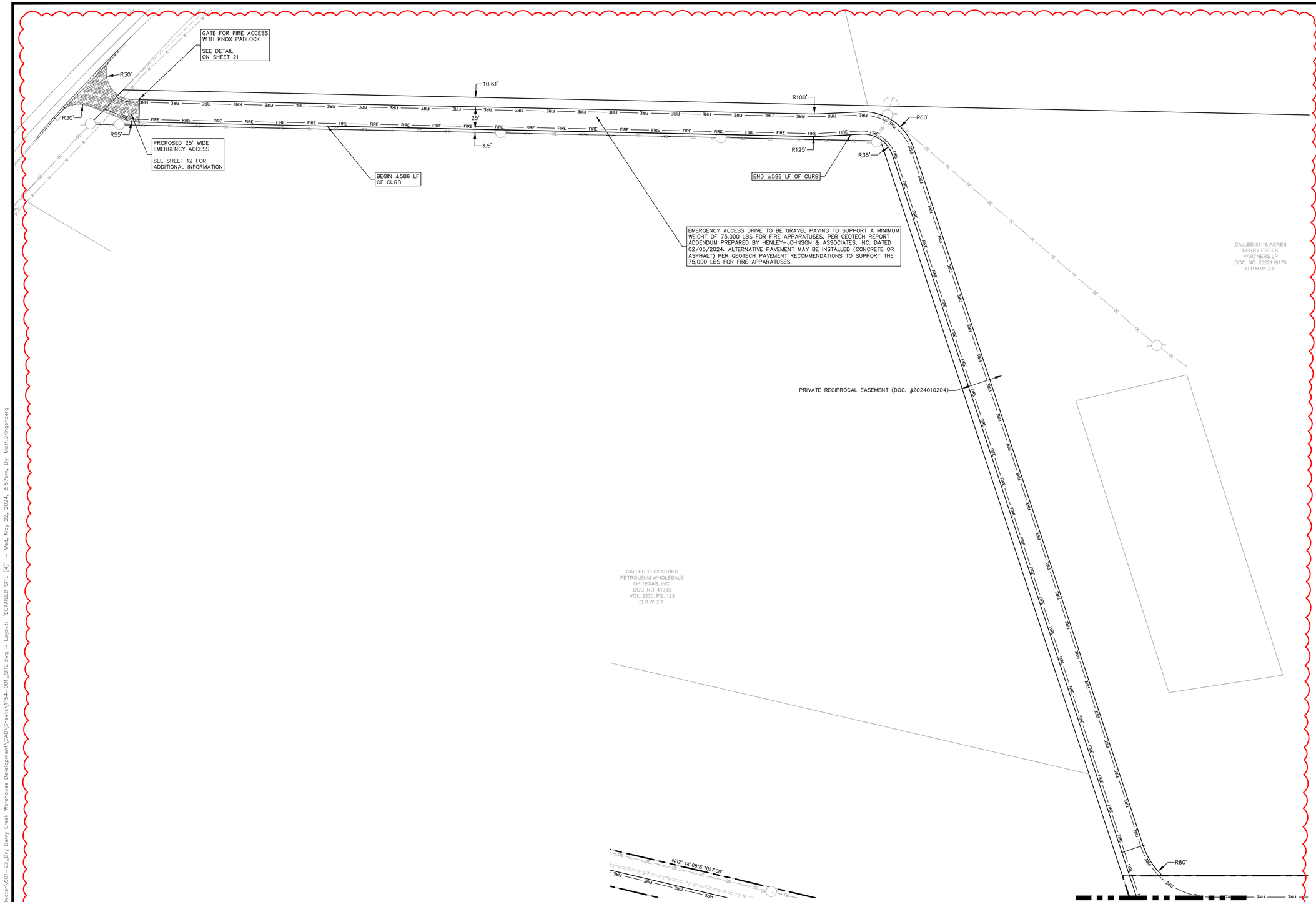
HANWHA TEXAS PLANT

3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001

DRAWING NO.

SHEET 19 OF 46



0 25 50 100
HORIZONTAL SCALE: 1"=50'

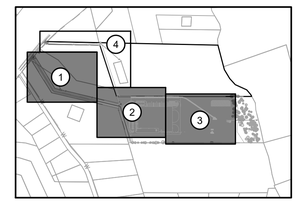
LEGEND

- PROPERTY BOUNDARY
- EASEMENT LINE
- FIRE LANE
- CURB AND GUTTER
- LIMITS OF CONSTRUCTION
- ACCESSIBLE ROUTE
- 100-YR FEMA FLOODPLAIN
- SIGN
- TREE TO BE KEPT
- PROTECTED TREE TO BE KEPT
- HERITAGE TREE TO BE KEPT

1C

NOTES:

1. ALL TRAFFIC CONTROLS SHALL CONFORM WITH THE LATEST EDITION OF TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
2. ALL DIMENSIONS ARE TO THE FACE OF CURB, UNLESS OTHERWISE NOTED.
3. ALL DRIVES AND PARKING AREAS TO BE ASPHALT OR CONCRETE PAVING UNLESS OTHERWISE NOTED.
4. ALL CURB RADII SHALL BE 3.0' UNLESS OTHERWISE NOTED.
5. CONSTRUCTION ACTIVITY AND ACCESS TO THE PROPERTY FOR CONSTRUCTION PURPOSES IS LIMITED TO THE BOUNDARY OF THE LIMITS OF CONSTRUCTION AS SHOWN ON THE TEMPORARY EROSION AND SEDIMENTATION CONTROL PLAN (SHEETS 7 & 8)
6. REFER TO GEOTECHNICAL REPORT PREPARED BY HENLEY-JOHNSTON & ASSOSIATES, INC. DATED 12/08/2023 , FOR ADITIONAL INFORMATION AND PAVEMENT SPECIFICATIONS.



KEY MAP
N.T.S.

TEXAS ONE CALL SYSTEM
1-800-245-4545

UNDER PENALTY OF LAW, THE CONTRACTOR IS REQUIRED TO CONTACT THE TEXAS ONE CALL SYSTEM AT LEAST 48 HOURS BEFORE STARTING EXCAVATION.

CAUTION - ELECTRICITY PRESENT

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NO.	REVISION	DATE
1C	MODIFIED DRIVEWAYS AND PARKING AREAS	05/22/24

5.22.2024

STATE OF TEXAS
MATTHEW A. DRINGENBERG
114250
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY MATTHEW A. DRINGENBERG, PE #114250 ON THE DATE INDICATED. ANY ALTERATIONS OF THIS SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

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CENTRAL TEXAS
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P: 512.312.4336

WARNING
IF THIS BAR DOES NOT MEASURE 1". THE DRAWING IS NOT TO SCALE

DRAWN BY: T.J.B.

CHECKED BY: A.C.K

DETAILED SITE AND DIMENSIONAL CONTROL PLAN (4 OF 4)

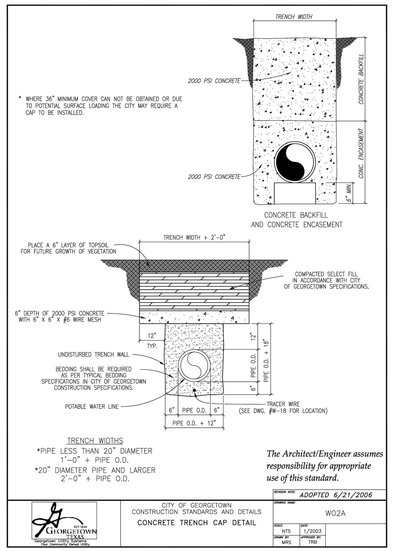
HANWHA TEXAS PLANT

3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001

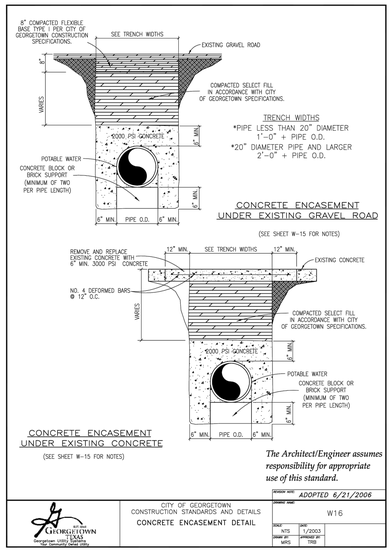
DRAWING NO.

SHEET 20 OF 46



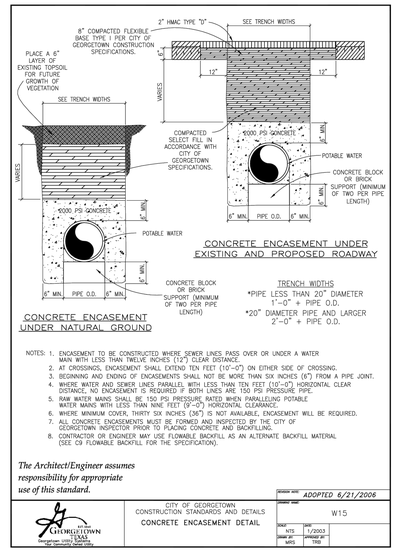
The Architect/Engineer assumes responsibility for appropriate use of this standard.

	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS CONCRETE TRENCH CAP DETAIL	REVISED W/O: ADOPTED 6/21/2006 DRAWING NO. W02A SCALE: NTS 1/2003 DRAWN BY: MRS CHECKED BY: TRB



The Architect/Engineer assumes responsibility for appropriate use of this standard.

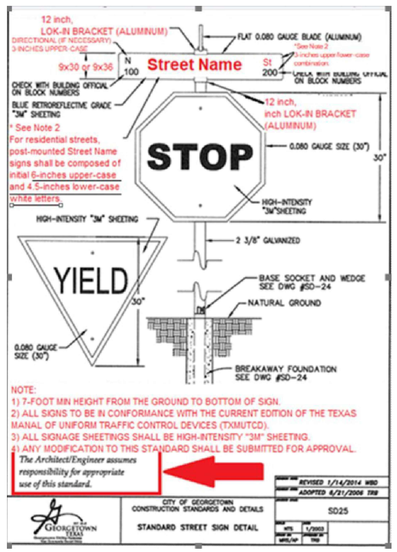
	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS CONCRETE ENCASEMENT DETAIL	REVISED W/O: ADOPTED 6/21/2006 DRAWING NO. W16 SCALE: NTS 1/2003 DRAWN BY: MRS CHECKED BY: TRB



NOTES:
1. ENCASEMENT TO BE CONSTRUCTED WHERE SEWER LINES PASS OVER OR UNDER A WATER MAIN WITH LESS THAN TWELVE INCHES (12") CLEAR DISTANCE.
2. AT CROSSINGS, ENCASEMENT SHALL EXTEND TEN FEET (10'-0") ON EITHER SIDE OF CROSSING.
3. BEGINNING AND ENDING OF ENCASEMENTS SHALL NOT BE MORE THAN SIX INCHES (6") FROM A PIPE JOINT.
4. WHERE WATER AND SEWER LINES PARALLEL WITH LESS THAN TEN FEET (10'-0") HORIZONTAL CLEAR DISTANCE, NO ENCASEMENT IS REQUIRED IF BOTH LINES ARE 150 PSI PRESSURE PIPE.
5. RAW WATER MAINS SHALL BE 150 PSI PRESSURE RATED WHEN PARALLELING POTABLE WATER MAINS WITH LESS THAN NINE FEET (9'-0") HORIZONTAL CLEARANCE.
6. WHERE MINIMUM COVER, THIRTY SIX INCHES (36") IS NOT AVAILABLE, ENCASEMENT WILL BE REQUIRED.
7. ALL CONCRETE ENCASEMENTS MUST BE FORMED AND INSPECTED BY THE CITY OF GEORGETOWN INSPECTOR PRIOR TO PLACING CONCRETE AND BACKFILLING.
8. CONTRACTOR OR ENGINEER MAY USE FLOWABLE BACKFILL AS AN ALTERNATE BACKFILL MATERIAL (SEE C9 FLOWABLE BACKFILL FOR THE SPECIFICATION).

The Architect/Engineer assumes responsibility for appropriate use of this standard.

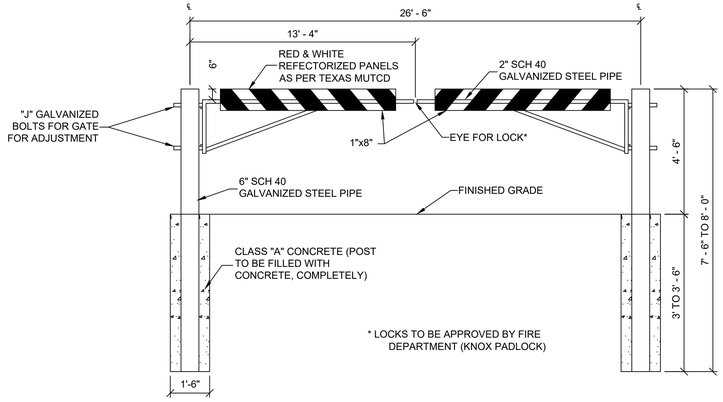
	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS CONCRETE ENCASEMENT DETAIL	REVISED W/O: ADOPTED 6/21/2006 DRAWING NO. W15 SCALE: NTS 7/2003 DRAWN BY: MRS CHECKED BY: TRB



NOTE:
1) 7-FOOT MIN HEIGHT FROM THE GROUND TO BOTTOM OF SIGN.
2) ALL SIGNS TO BE IN CONFORMANCE WITH THE CURRENT EDITION OF THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (TXMUTCD).
3) ALL SIGNAGE SHEETINGS SHALL BE HIGH-INTENSITY "3M" SHEETING.
4) ANY MODIFICATION TO THIS STANDARD SHALL BE SUBMITTED FOR APPROVAL.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS STANDARD STREET SIGN DETAIL	REVISED W/O: REVISED 1/14/2014 WBB ADOPTED 6/21/2006 TRB DRAWING NO. SD25 SCALE: NTS 1/2003 DRAWN BY: MRS CHECKED BY: TRB



FIRE ACCESS GATE

N.T.S.

TEXAS ONE CALL SYSTEM
1-800-245-4545

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NO.	REVISION	DATE

4.9.2024

STATE OF TEXAS
MATTHEW A. DRINGENBERG
114250
LICENSED PROFESSIONAL ENGINEER

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P: 512.312.4336

WARNING
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DRAWN BY: T.J.B.

CHECKED BY: A.C.K

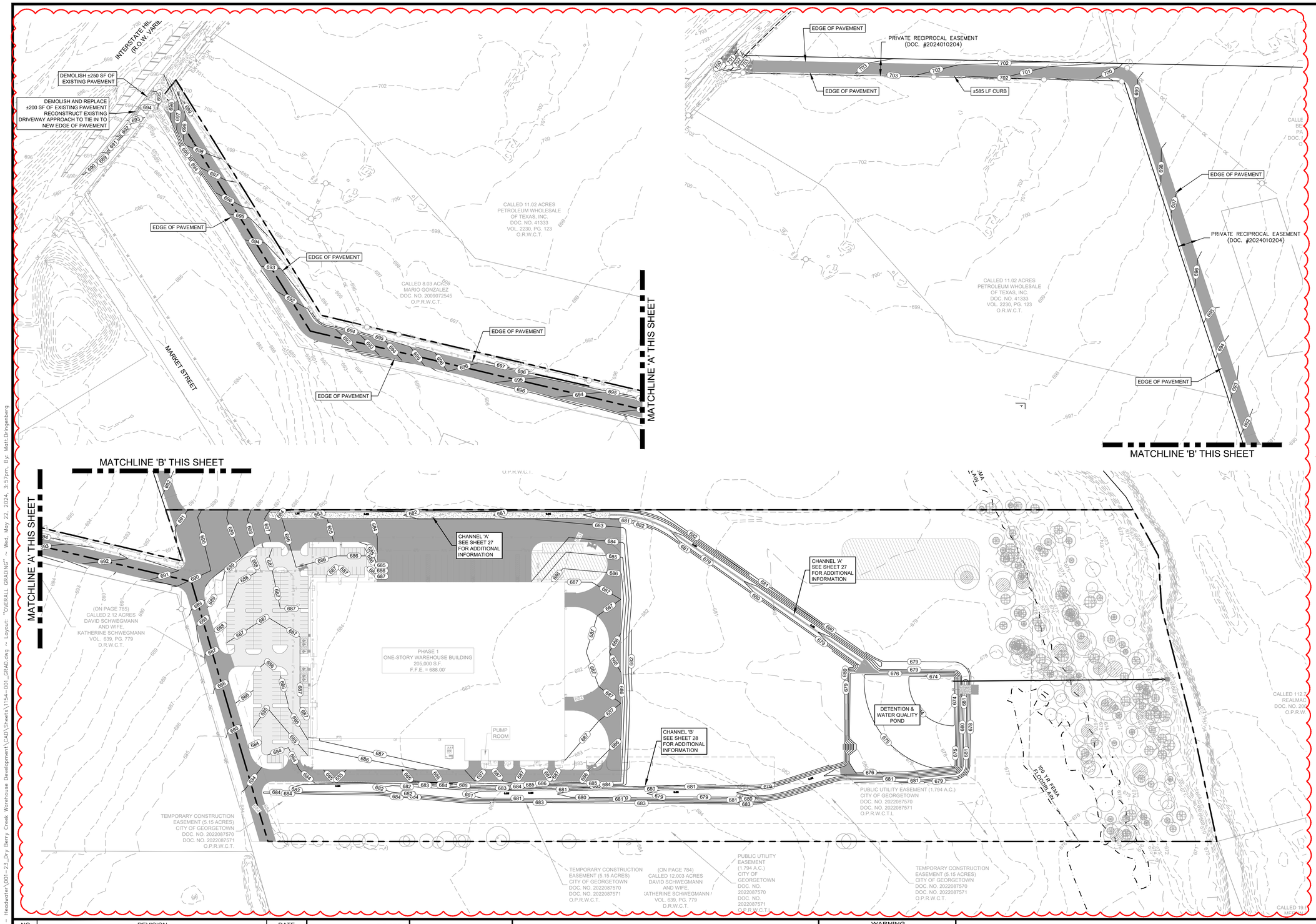
SITE DETAILS

HANWHA TEXAS PLANT
3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001

DRAWING NO.

SHEET 21 OF 46



NOTES:

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2) TOPSOIL THAT HAS BEEN STRIPPED FROM THE SITE AND STOCKPILED MAY BE USED. REMOVE ALL BRUSH, TRASH, STUMPS, WOOD, CONCRETE AND OTHER DEBRIS OVER 1-1/2 IN SIZE PRIOR TO SPREADING.

3) IF SUFFICIENT QUANTITIES ARE NOT AVAILABLE, PROVIDE IMPORTED TOPSOIL CHARACTERISTIC OF THE AREA. PROVIDE IMPORTED LOAM TOPSOIL CONTAINING A MINIMUM ORGANIC MATTER CONTENT BY WEIGHT OF 5%. TOPSOIL SHALL NOT HAVE A MIXTURE SUBSOIL AND SHALL CONTAIN NO STONES, LUMPS OF SOIL, STICKS, ROOTS, TRASH OR OTHER EXTRANEOUS MATERIALS LARGER THAN 1-1/2 INCHES IN DIAMETER OR LENGTH.

4) ALL SIDEWALK SLOPES SHALL NOT EXCEED THE FOLLOWING A.D.A. REQUIREMENTS:
1:20 LONGITUDINAL (ALONG THE WALK) MAX.
1:50 TRANSVERSE (ACROSS THE WALK) MAX.
ALL HANDICAP LOADING AND UNLOADING AREAS SHALL NOT EXCEED 1:50 IN ANY DIRECTION.

5) REFER TO GEOTECHNICAL REPORT PREPARED BY HENLEY-JOHNSTON & ASSOCIATES, INC. DATED 12/08/2023, AND AMENDED REPORT DATED 02/05/2024, FOR ADDITIONAL INFORMATION AND PAVEMENT SPECIFICATIONS.

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NO.	REVISION	DATE
1C	REVISED GRADING BASED ON DRIVEWAY/PARKING CHANGES	05/22/24

5.6.2024

STATE OF TEXAS
MATTHEW A. DRINGENBERG
114250
LICENSED
PROFESSIONAL ENGINEER

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DRAWN BY: T.J.B.

CHECKED BY: A.C.K

OVERALL GRADING PLAN

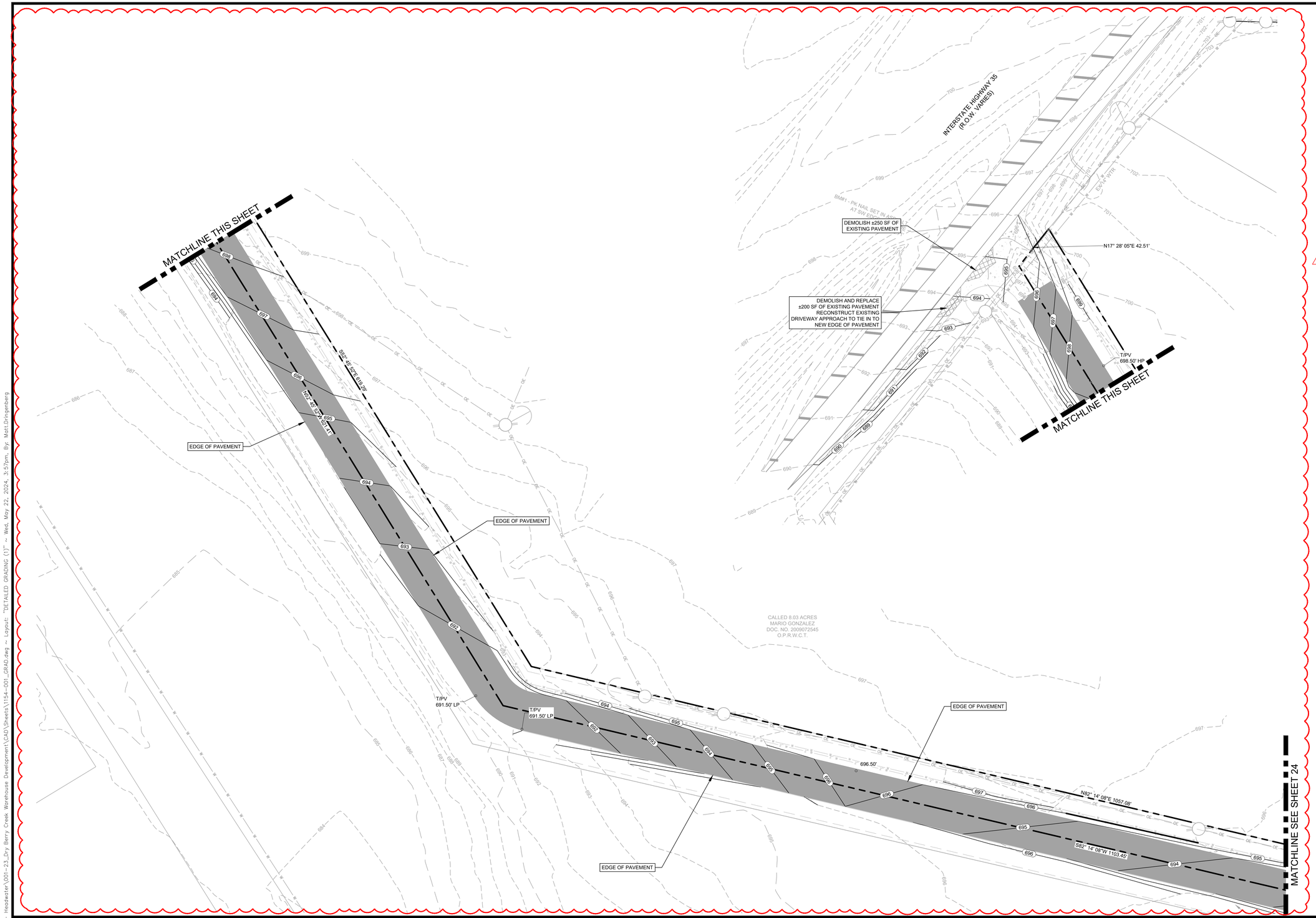
HANWHA TEXAS PLANT

3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001

DRAWING NO.

SHEET 22 OF 46



0 20 40 80

HORIZONTAL SCALE: 1"=40'

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- PROPOSED SPOT ELEVATION
- LIGHT TRUCK USE (5" PAVEMENT THICKNESS)
- HEAVY TRUCK USE (6" PAVEMENT THICKNESS)

ABBREVIATIONS:

T/SW = TOP OF SIDEWALK

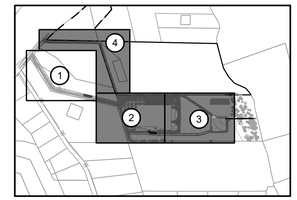
T/PV = TOP OF PAVEMENT

T/C = TOP OF CURB

HP = HIGH POINT

LP = LOW POINT

1C



KEY MAP
N.T.S.

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NO.	REVISION	DATE
1C	REVISED GRADING BASED ON DRIVEWAY/PARKING CHANGES	05/22/24

STATE OF TEXAS
MATTHEW A. DRINGENBERG
114250
LICENSED
PROFESSIONAL ENGINEER
5.6.2024

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DRAWN BY: T.J.B.

CHECKED BY: A.C.K

DETAILED GRADING PLAN (1 OF 4)

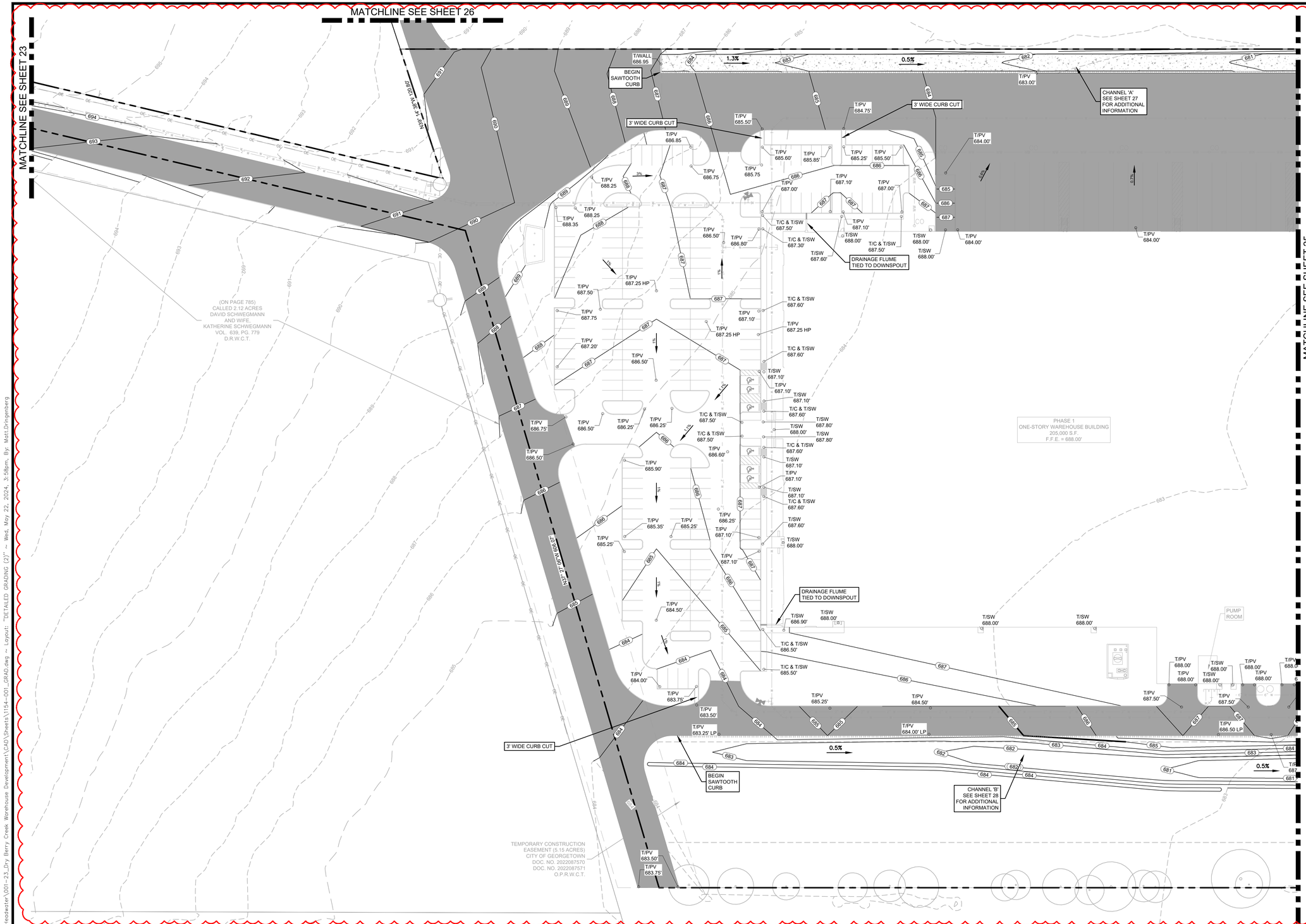
HANWHA TEXAS PLANT

3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001

DRAWING NO. _____

SHEET 23 OF 46



0 20 40 80
HORIZONTAL SCALE: 1"=40'

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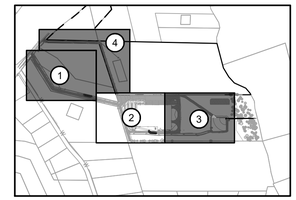

KEY MAP
N.T.S.

1C

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NO.	REVISION	DATE
1C	REVISED GRADING BASED ON DRIVEWAY/PARKING CHANGES	05/22/24

STATE OF TEXAS
MATTHEW A. DRINGENBERG
114250
LICENSED
PROFESSIONAL
5.6.2024

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CENTRAL TEXAS
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P: 512.312.4336

WARNING
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DRAWN BY: T.J.B.

CHECKED BY: A.C.K

DETAILED GRADING PLAN (2 OF 4)

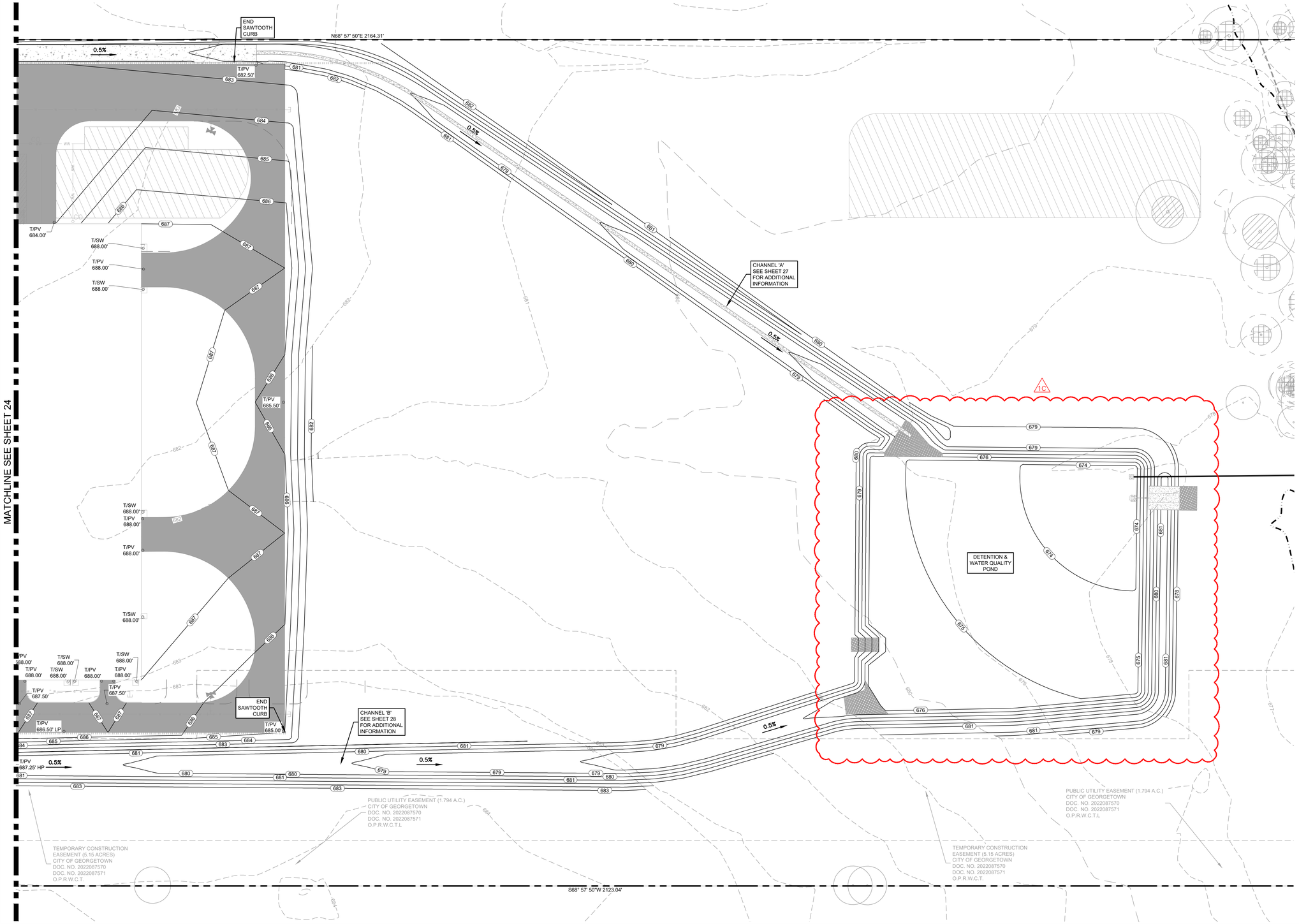
HANWHA TEXAS PLANT

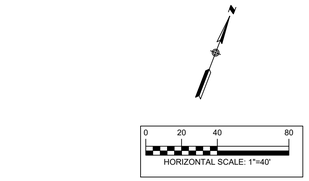
3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001

DRAWING NO.

SHEET 24 OF 46

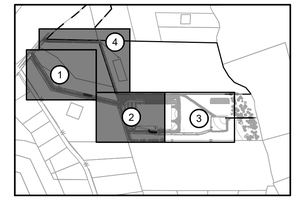




LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- PROPOSED SPOT ELEVATION
- LIGHT TRUCK USE (5" PAVEMENT THICKNESS)
- HEAVY TRUCK USE (6" PAVEMENT THICKNESS)

ABBREVIATIONS:
T/SW = TOP OF SIDEWALK
T/PV = TOP OF PAVEMENT
T/C = TOP OF CURB
HP = HIGH POINT
LP = LOW POINT



KEY MAP
N.T.S.

NOTES:

1) ALL DISTURBED AREAS AND AREAS DESIGNATED AS "GRASS" AREAS SHALL RECEIVE A MINIMUM OF 4" OF TOP SOIL AND BE REVEGETATED BY SEED, HYDROMULCH, OR SOD. MAINTAIN AND WATER THESE AREAS AS NECESSARY TO ESTABLISH PERMANENT REVEGETATIVE GROWTH OF APPROXIMATELY TWO (2) INCHES OF HEIGHT OVER 70% OF AREA.

2) TOPSOIL THAT HAS BEEN STRIPPED FROM THE SITE AND STOCKPILED MAY BE USED. REMOVE ALL BRUSH, TRASH, STUMPS, WOOD, CONCRETE AND OTHER DEBRIS OVER 1-1/2 IN SIZE PRIOR TO SPREADING.

3) IF SUFFICIENT QUANTITIES ARE NOT AVAILABLE, PROVIDE IMPORTED TOPSOIL CHARACTERISTIC OF THE AREA. PROVIDE IMPORTED LOAM TOPSOIL CONTAINING A MINIMUM ORGANIC MATTER CONTENT BY WEIGHT OF 5%. TOPSOIL SHALL NOT HAVE A MIXTURE SUBSOIL AND SHALL CONTAIN NO STONES, LUMPS OF SOIL, STICKS, ROOTS, TRASH OR OTHER EXTRANEOUS MATERIALS LARGER THAN 1-1/2 INCHES IN DIAMETER OR LENGTH.

4) ALL SIDEWALK SLOPES SHALL NOT EXCEED THE FOLLOWING A.D.A. REQUIREMENTS:
1:20 LONGITUDINAL (ALONG THE WALK) MAX.
1:50 TRANSVERSE (ACROSS THE WALK) MAX.
ALL HANDICAP LOADING AND UNLOADING AREAS SHALL NOT EXCEED 1:50 IN ANY DIRECTION.

5) REFER TO GEOTECHNICAL REPORT PREPARED BY HENLEY-JOHNSTON & ASSOCIATES, INC. DATED 12/08/2023, AND AMENDED REPORT DATED 02/05/2024, FOR ADDITIONAL INFORMATION AND PAVEMENT SPECIFICATIONS.

TEXAS ONE CALL SYSTEM
1-800-245-4545

UNDER PENALTY OF LAW, THE CONTRACTOR IS REQUIRED TO CONTACT THE TEXAS ONE CALL SYSTEM AT LEAST 48 HOURS BEFORE STARTING EXCAVATION.

CAUTION - ELECTRICITY PRESENT

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NO.	REVISION	DATE
1C	REVISED POND GRADING	05/22/24

5.6.2024

STATE OF TEXAS
MATTHEW A. DRINGENBERG
114250
LICENSED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY MATTHEW A. DRINGENBERG, PE #114250 ON THE DATE INDICATED. ANY ALTERATIONS OF THIS SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

Southwest Engineers
TBPE NO. F-1909
www.swengineers.com

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307 Saint Lawrence Street, Gonzales TX 78629
P: 830.672.7546 F:830.672.2034

CENTRAL TEXAS
205 Cimarron Park Loop, Ste. B, Buda TX 78610
P: 512.312.4336

WARNING
IF THIS BAR DOES NOT MEASURE 1", THE DRAWING IS NOT TO SCALE

DRAWN BY: T.J.B.

CHECKED BY: A.C.K

DETAILED GRADING PLAN (3 OF 4)

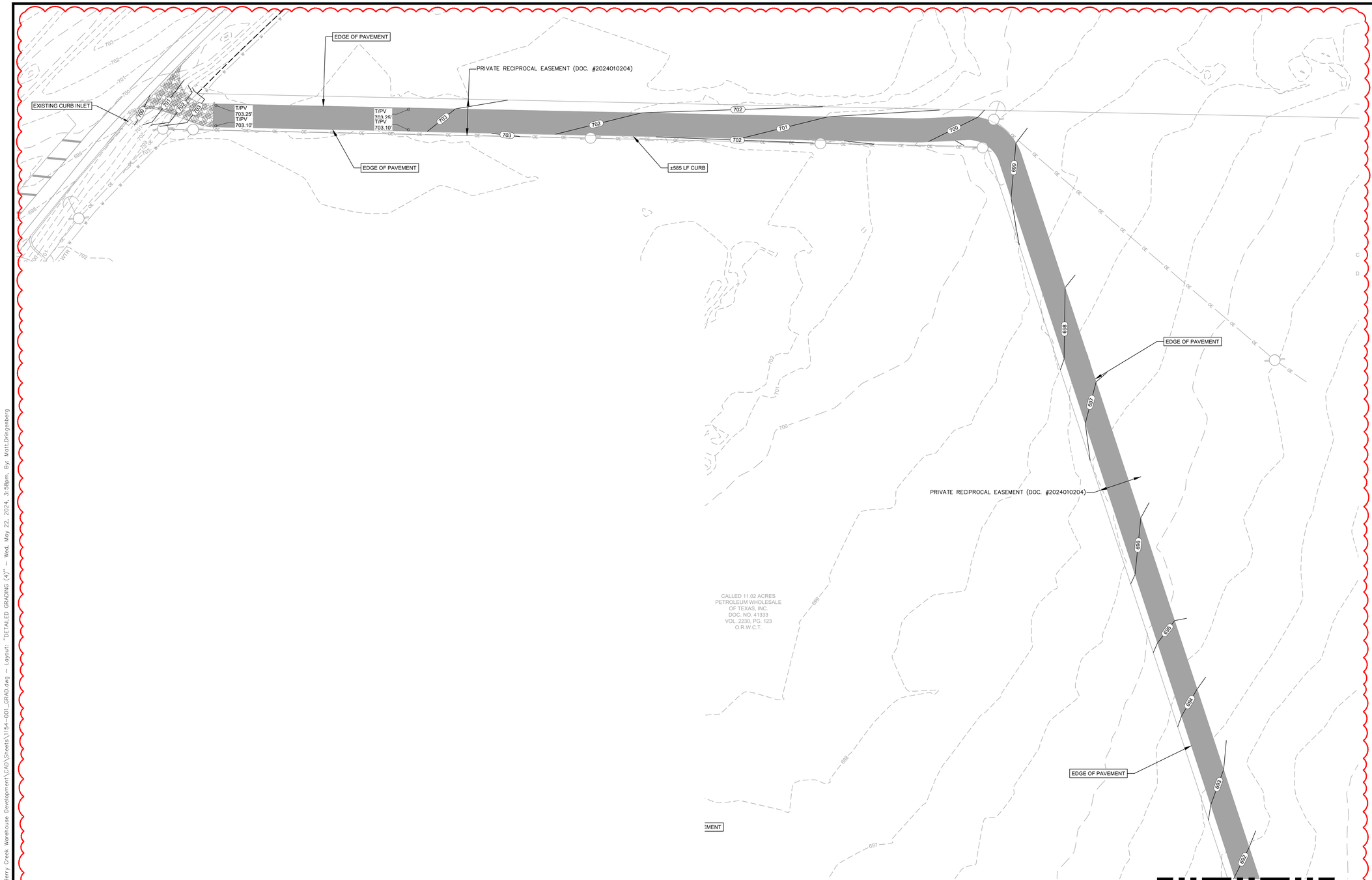
HANWHA TEXAS PLANT

3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001

DRAWING NO.

SHEET 25 OF 46



0 20 40 80

HORIZONTAL SCALE: 1"=40'

LEGEND

EXISTING CONTOURS

PROPOSED CONTOURS

PROPOSED SPOT ELEVATION

LIGHT TRUCK USE
(5" PAVEMENT THICKNESS)

HEAVY TRUCK USE
(6" PAVEMENT THICKNESS)

ABBREVIATIONS:
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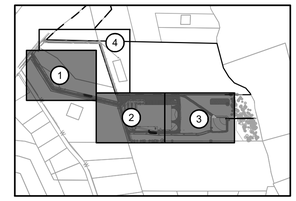
1C



KEY MAP
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NOTES:

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TEXAS ONE CALL SYSTEM
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NO.	REVISION	DATE
1C	REVISED GRADING BASED ON DRIVEWAY/PARKING CHANGES	05/22/24

STATE OF TEXAS
MATTHEW A. DRINGENBERG
114250
LICENSED
PROFESSIONAL ENGINEER
5.6.2024

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CENTRAL TEXAS
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P: 512.312.4336

WARNING
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DRAWN BY: T.J.B.

CHECKED BY: A.C.K

DETAILED GRADING PLAN (4 OF 4)

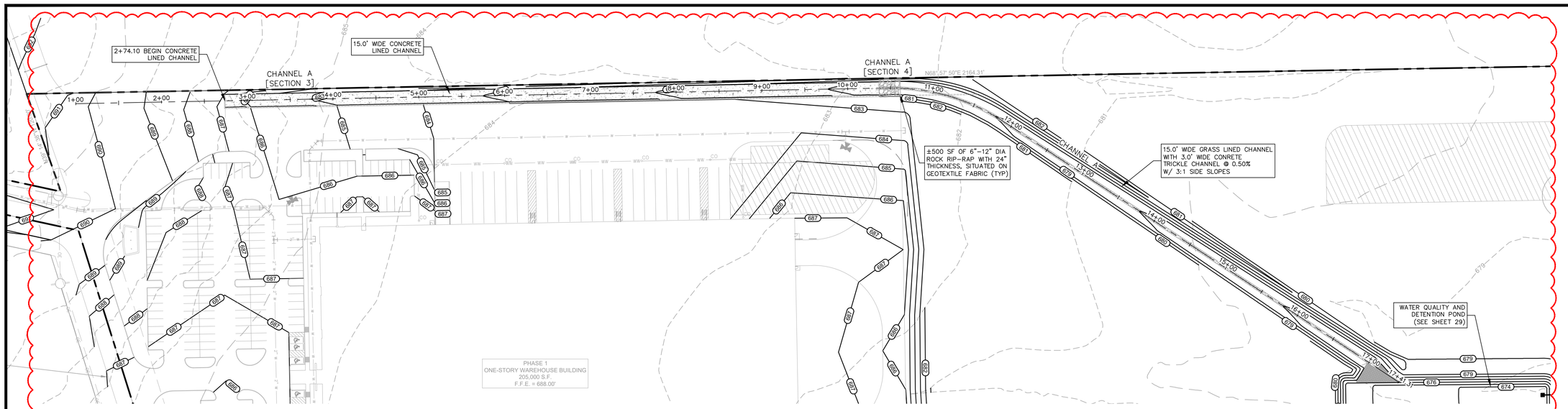
HANWHA TEXAS PLANT

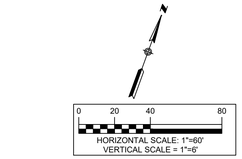
3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001

DRAWING NO.

SHEET 26 OF 46





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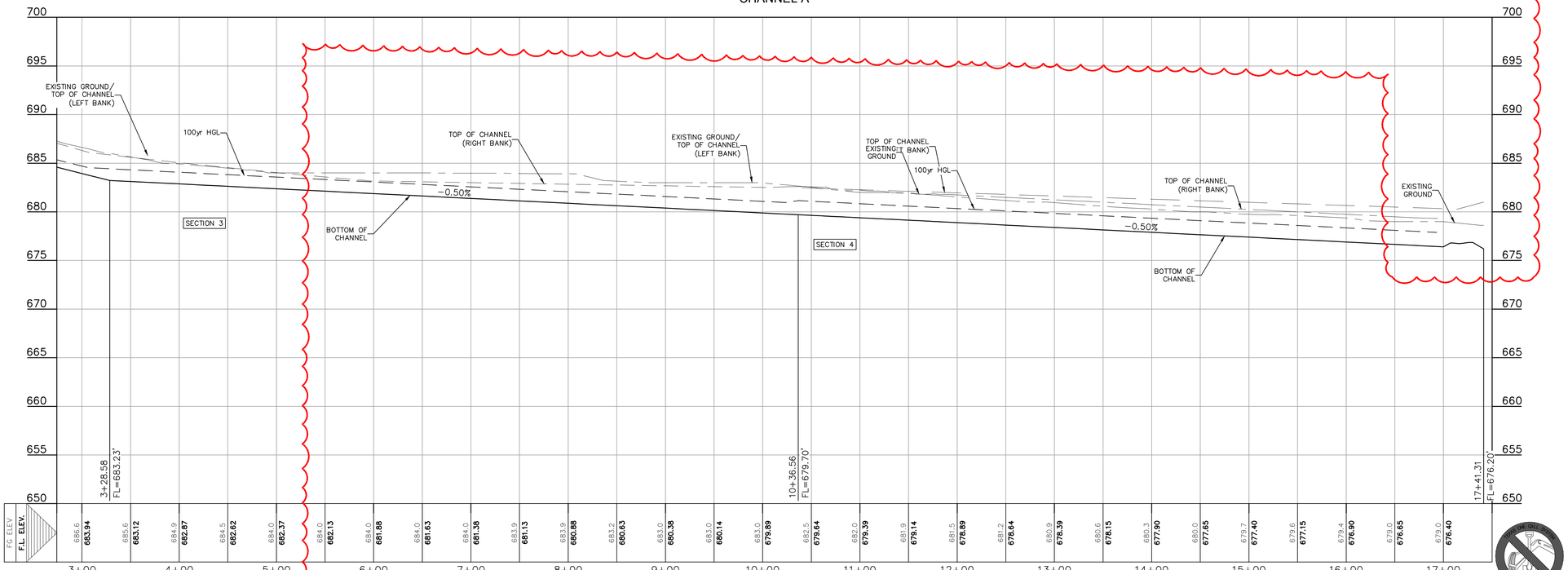

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NO.	REVISION	DATE
1C	REVISED GRADING BASED ON DRIVEWAY/PARKING CHANGES	05/22/24

5.22.2024

STATE OF TEXAS
MATTHEW A. DRINGENBERG
114250
LICENSED PROFESSIONAL ENGINEER

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DRAWN BY: T.J.B.

CHECKED BY: A.C.K

CHANNEL A

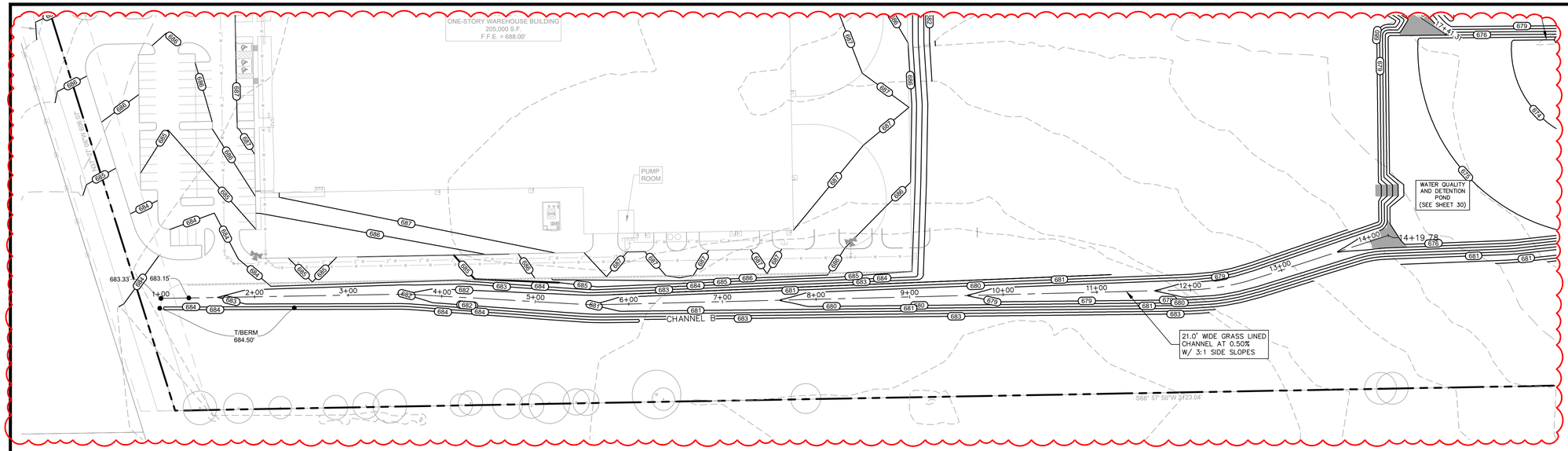
HANWHA TEXAS PLANT

3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001

DRAWING NO.

SHEET 27 OF 46



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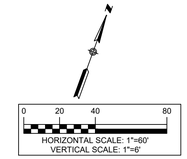
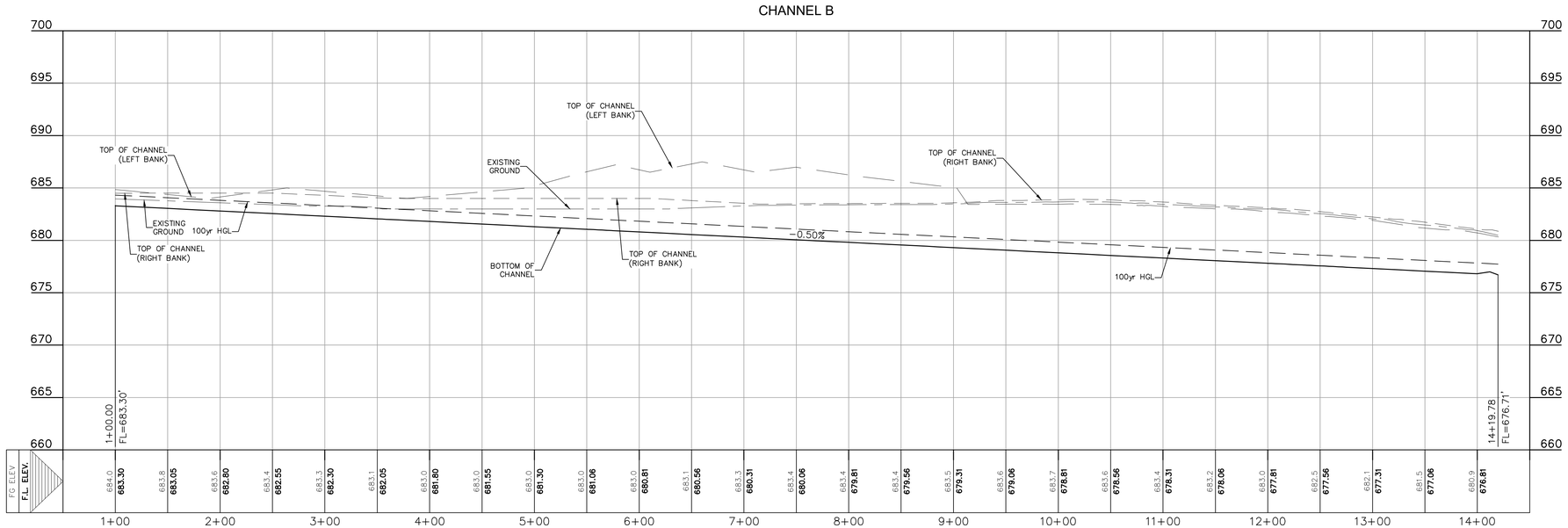


LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- WATER LINE
- WASTEWATER LINE
- GAS LINE
- STORM DRAIN PIPE
- CURB INLET
- AREA INLET
- JUNCTION BOX



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NO.	REVISION	DATE
1C	REVISED GRADING BASED ON DRIVEWAY/PARKING CHANGES	05/22/24

5.22.2024

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DRAWN BY: T.J.B.

CHECKED BY: A.C.K

CHANNEL B

HANWHA TEXAS PLANT

3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001

DRAWING NO.

SHEET 28 OF 46

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3OB by Autodesk, Inc. — Thursday, Jan 25 2024

CHANNEL A SECTION 3

User-defined		Highlighted	
Invert Elev (ft)	= 1.00	Depth (ft)	= 1.21
Slope (%)	= 0.50	Q (cfs)	= 117.50
N-Value	= 0.015	Area (sqft)	= 17.02
		Velocity (ft/s)	= 6.90
Calculations		Wetted Perim (ft)	= 17.12
Compute by:	Known Q	Crit Depth, Yc (ft)	= 1.21
Known Q (cfs)	= 117.50	Top Width (ft)	= 15.00
		EGL (ft)	= 1.95

(Sta, El, n)-(Sta, El, n)...
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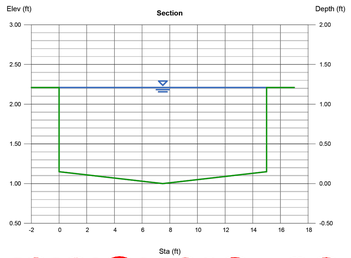
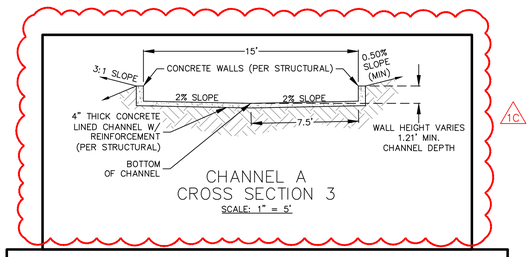
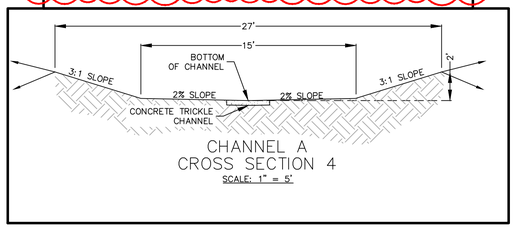




CHANNEL A
CROSS SECTION 3
SCALE: 1" = 5'



CHANNEL A
CROSS SECTION 4
SCALE: 1" = 5'

1C

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3OB by Autodesk, Inc. — Monday, Jan 29 2024

CHANNEL A SECTION 4

User-defined		Highlighted	
Invert Elev (ft)	= 0.85	Depth (ft)	= 1.78
Slope (%)	= 0.50	Q (cfs)	= 169.99
N-Value	= 0.025	Area (sqft)	= 34.23
		Velocity (ft/s)	= 4.97
Calculations		Wetted Perim (ft)	= 26.07
Compute by:	Known Q	Crit Depth, Yc (ft)	= 1.52
Known Q (cfs)	= 169.99	Top Width (ft)	= 25.57
		EGL (ft)	= 2.16

(Sta, El, n)-(Sta, El, n)...
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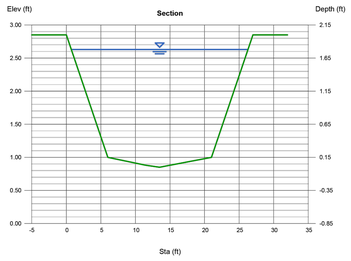

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3OB by Autodesk, Inc. — Thursday, Jan 25 2024

CHANNEL A SECTION 2

User-defined		Highlighted	
Invert Elev (ft)	= 1.00	Depth (ft)	= 0.76
Slope (%)	= 2.50	Q (cfs)	= 117.50
N-Value	= 0.015	Area (sqft)	= 10.27
		Velocity (ft/s)	= 11.44
Calculations		Wetted Perim (ft)	= 16.22
Compute by:	Known Q	Crit Depth, Yc (ft)	= 1.21
Known Q (cfs)	= 117.50	Top Width (ft)	= 15.00
		EGL (ft)	= 2.79

(Sta, El, n)-(Sta, El, n)...
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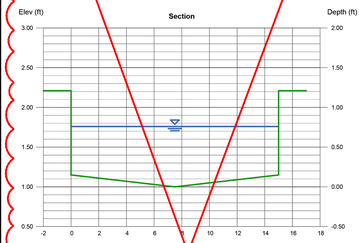

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3OB by Autodesk, Inc. — Thursday, Jan 25 2024

CHANNEL A SECTION 1

User-defined		Highlighted	
Invert Elev (ft)	= 1.00	Depth (ft)	= 0.72
Slope (%)	= 3.00	Q (cfs)	= 117.50
N-Value	= 0.015	Area (sqft)	= 9.67
		Velocity (ft/s)	= 12.14
Calculations		Wetted Perim (ft)	= 16.14
Compute by:	Known Q	Crit Depth, Yc (ft)	= 1.21
Known Q (cfs)	= 117.50	Top Width (ft)	= 15.00
		EGL (ft)	= 3.01

(Sta, El, n)-(Sta, El, n)...
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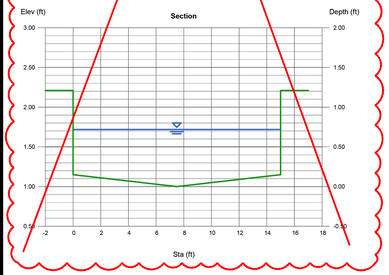

1C

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3OB by Autodesk, Inc. — Wednesday, Dec 13 2023

Channel B

User-defined		Highlighted	
Invert Elev (ft)	= 0.85	Depth (ft)	= 1.02
Slope (%)	= 0.50	Q (cfs)	= 49.50
N-Value	= 0.030	Area (sqft)	= 16.48
		Velocity (ft/s)	= 3.00
Calculations		Wetted Perim (ft)	= 20.51
Compute by:	Known Q	Crit Depth, Yc (ft)	= 0.75
Known Q (cfs)	= 49.50	Top Width (ft)	= 20.22
		EGL (ft)	= 1.16

(Sta, El, n)-(Sta, El, n)...
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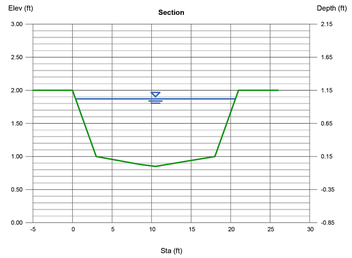

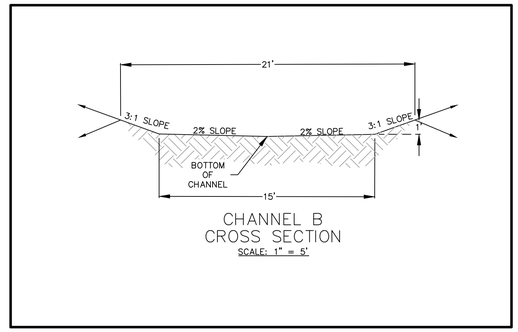

CHANNEL B
CROSS SECTION
SCALE: 1" = 5'

TEXAS ONE CALL SYSTEM
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NO.	REVISION	DATE
1C	REVISED GRADING BASED ON DRIVEWAY/PARKING CHANGES	05/22/24

5.22.2024

STATE OF TEXAS — MATTHEW A. DRINGENBERG — 114250 — LICENSED PROFESSIONAL ENGINEER

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P: 512.312.4336

WARNING
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CHECKED BY: A.C.K

CHANNEL DETAILS

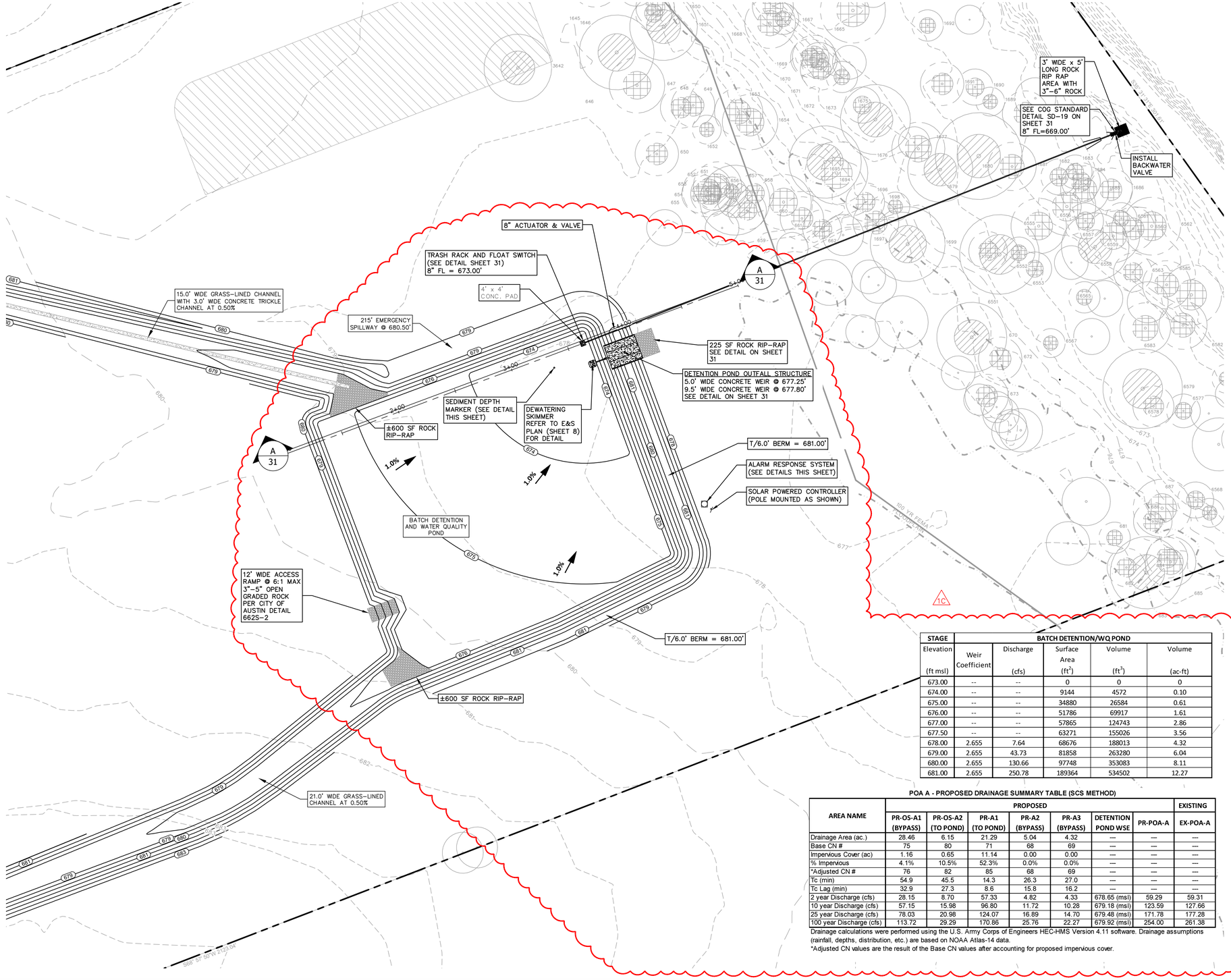
HANWHA TEXAS PLANT

3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001

DRAWING NO.

SHEET 29 OF 46



0 20 40 80
HORIZONTAL SCALE: 1"=40'

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- WATER LINE
- WASTEWATER LINE
- GAS LINE
- STORM DRAIN PIPE
- CURB INLET
- AREA INLET
- JUNCTION BOX

NOTES:

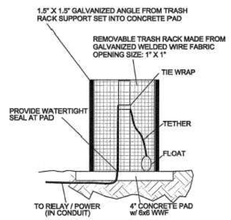
1. BATCH DETENTION POND SHALL BE IN ACCORDANCE WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) RG-348 MANUAL (ADDENDUM).
2. THE BATCH DETENTION POND AND RISER PIPE/TRASH RACK WILL FUNCTION AS THE DEWATERING OUTLET AND SHALL BE INSTALLED AND FUNCTIONAL PRIOR TO ANY GENERAL GRADING AND UTILITY WORK.
3. SYSTEM SHALL BE 12 VDC WITH SOLAR CHARGED 12VDC BATTERY. ALTERNATIVE ELECTRICAL DESIGN MAY ALSO BE UTILIZED IN LIEU OF SOLAR POWER WITH ENGINEERS APPROVAL.
4. ACTUATOR SHALL BE ELECTRONIC QUATER-TURN WITH MANUAL OVERRIDE AND POSITION INDICATOR.
5. ACTUATOR SHALL BE "AVID 12V ACTUATOR, EPI-6" OR EQUIVALENT.
6. ACTUATOR VALVE TO BE SET AT "NORMALLY CLOSED" POSITION.
7. CONTROLLER SHALL BE SET TO OPEN VALVE 12 HOURS AFTER INITIAL RAINFALL DETECTION. VALVE TO REMAIN OPEN UNTIL 2HRS FOLLOWING BASIN EMPTY SIGNAL.
8. CONTROLLER SHALL HAVE TEST SEQUENCE, ON/OFF/RESET SWITCH AND THE PROGRAMMING SHALL BE FIELD UPLOADABLE.
9. CONTROLLER SHALL BE "MORNINGSTAR SOLAR CONTROLLER, 12V, 20 AMP" OR EQUIVALENT.
10. ALL WIRING SHALL BE INSTALLED IN CONDUIT AND BURIED. CONTACT ENGINEER FOR ADDITIONAL CONTROLER SCHEMATICS.
11. CONTRACTOR TO INSTALL LIBERTY ALARM MODEL ALM-2W OR EQUIVALENT AT A CONTROLLER PANEL.
12. ATTACH ALARM RESPONSE SIGN TO CONTROLLER POLE. REFERENCE ALARM SIGN.
13. CONTRACTOR TO VERIFY LOCATION AND DEPTH OF EXISTING UTILITIES PRIOR TO CONSTRUCTION AND ENSURE CONTINUITY OF SERVICES AS NECESSARY.
14. ALL POND BOTTOMS, SIDE SLOPES, AND EARTHEN EMBANKMENTS SHALL BE COMPACTED TO NINETY-FIVE (95%) PERCENT MAXIMUM DENSITY IN ACCORDANCE WITH THE CITY OF AUSTIN STANDARD SPECIFICATIONS.
15. A CELLULAR BASED NOTIFICATION SYSTEM SHALL BE PROVIDED TO COMMUNICATE THE STATUS OF THE POND(VALVE OPERATION AND POWER STATUS.
16. EXPANSION JOINTS ON FREE STANDING WALLS SHALL HAVE WATER TIGHT SEALS AS NEEDED.
17. STRUCTURAL DETAILS FOR WALLS 4' AND GREATER IN HEIGHT, WATER QUALITY POND, AND DETENTION POND TO BE PROVIDED BY STRUCTURAL ENGINEER.

STAGE	BATCH DETENTION/WQ POND				
Elevation (ft msl)	Weir Coefficient	Discharge (cfs)	Surface Area (ft^2)	Volume (ft^3)	Volume (ac-ft)
673.00	--	--	0	0	0
674.00	--	--	9144	4572	0.10
675.00	--	--	34880	26584	0.61
676.00	--	--	51786	69917	1.61
677.00	--	--	57865	124743	2.86
677.50	--	--	63271	155026	3.56
678.00	2.655	7.64	68676	188013	4.32
679.00	2.655	43.73	81858	263280	6.04
680.00	2.655	130.66	97748	353083	8.11
681.00	2.655	250.78	189364	534502	12.27

POA A - PROPOSED DRAINAGE SUMMARY TABLE (SCS METHOD)

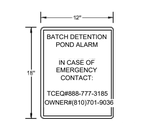
AREA NAME	PROPOSED							EXISTING
	PR-OS-A1 (BYPASS)	PR-OS-A2 (TO POND)	PR-A1 (TO POND)	PR-A2 (BYPASS)	PR-A3 (BYPASS)	DETENTION POND WSE	PR-POA-A	EX-POA-A
Drainage Area (ac.)	28.46	6.15	21.29	5.04	4.32	---	---	---
Base CN #	75	80	71	68	69	---	---	---
Impervious Cover (ac)	1.16	0.65	11.14	0.00	0.00	---	---	---
% Impervious	4.1%	10.5%	52.3%	0.0%	0.0%	---	---	---
*Adjusted CN #	76	82	85	68	69	---	---	---
Tc (min)	54.9	45.5	14.3	26.3	27.0	---	---	---
Tc Lag (min)	32.9	27.3	8.6	15.8	16.2	---	---	---
2 year Discharge (cfs)	28.15	8.70	57.33	4.82	4.33	678.65 (msl)	59.29	59.31
10 year Discharge (cfs)	57.15	15.98	96.80	11.72	10.28	679.18 (msl)	123.59	127.66
25 year Discharge (cfs)	78.03	20.98	124.07	16.89	14.70	679.48 (msl)	171.78	177.28
100 year Discharge (cfs)	113.72	29.29	170.86	25.76	22.27	679.92 (msl)	254.00	261.38

Drainage calculations were performed using the U.S. Army Corps of Engineers HEC-HMS Version 4.11 software. Drainage assumptions (rainfall, depths, distribution, etc.) are based on NOAA Atlas-14 data.
*Adjusted CN values are the result of the Base CN values after accounting for proposed impervious cover.



* FLOAT SWITCH TO BE PIPE MOUNTED ECO FLOAT, TYPE SI, NORMALLY OPEN, OR APPROVED EQUAL.

FLOAT SWITCH DETAIL
N.T.S.



ALARM RESPONSE SIGN
N.T.S.

TEXAS ONE CALL SYSTEM
1-800-245-4545

UNDER PENALTY OF LAW, THE CONTRACTOR IS REQUIRED TO CONTACT THE TEXAS ONE CALL SYSTEM AT LEAST 48 HOURS BEFORE STARTING EXCAVATION.

CAUTION - ELECTRICITY PRESENT

THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS THAT ENTER OR WORK ON THIS PROJECT ARE RESPONSIBLE FOR LOCATING, USING ONE-CALL OR THE ELECTRIC UTILITIES THEMSELVES, ALL OVERHEAD AND UNDERGROUND ELECTRICAL OF ANY NATURE AND FOR SAFEGUARDING ALL PERSONNEL ON THIS PROJECT, INCLUDING ANY OFF-SITE WORK AREAS SHOWN ON THE PLAN, FROM ANY INTERFERENCE WITH THE ELECTRIC LINES OR FROM DAMAGING, DIGGING UP OR UNCOVERING THE ELECTRIC LINES, GETTING A LADDER IN HARMS WAY OR ANY OTHER ACTIVITY OF ANY NATURE THAT COULD HARM ANY INDIVIDUAL IN ANY MANNER. THIS RESPONSIBILITY HEREBY REMOVES THE ENGINEER AND THE OWNER FROM ANY LIABILITY OF ANY NATURE.

NO.	REVISION	DATE
1C	MODIFIED DETENTION/WATER QUALITY POND AND CALCULATIONS	05/22/24

5.22.2024
STATE OF TEXAS
MATTHEW A. DRINGENBERG
114250
LICENSED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY MATTHEW A. DRINGENBERG, PE #114250 ON
THE DATE INDICATED. ANY ALTERATIONS OF THIS SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

Southwest Engineers
TBPE NO. F-1909
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CENTRAL TEXAS
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P: 512.312.4336

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DRAWN BY: T.J.B.

CHECKED BY: A.C.K

WATER QUALITY AND DETENTION POND PLAN

HANWHA TEXAS PLANT
3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001

DRAWING NO.

SHEET 30 OF 46

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: **Hanwha Texas Plant**
Date Prepared: **4/23/2024**

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: $L_M = 28.93(A_N \times P)$

where:

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 85% 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 * =	**38.17**	acres
Predevelopment impervious area within the limits of the plan * =	**0.30**	acres
Total post-development impervious area within the limits of the plan* =	**12.81**	acres
Total post-development impervious cover fraction * =	**0.34**	
P =	**32**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**11581**	lbs.

*** The values entered in these fields should be for the total project area.**

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. = **1**

Total drainage basin/outfall area =	**27.44**	acres
Predevelopment impervious area within drainage basin/outfall area =	**0.30**	acres
Post-development impervious area within drainage basin/outfall area =	**11.79**	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.43**	
$L_{M\ THIS\ BASIN}$ =	**10003**	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = **Batch Detention Basin**
Removal efficiency = **91** 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 =	**21.29**	acres
A_I =	**11.79**	acres
A_P =	**9.50**	acres
L_R =	**12028**	lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ =	**11581**	lbs.
F =	**0.96**	

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 =	**2.80**	inches
Post Development Runoff Coefficient =	**0.39**	
On-site Water Quality Volume =	**84200**	cubic feet

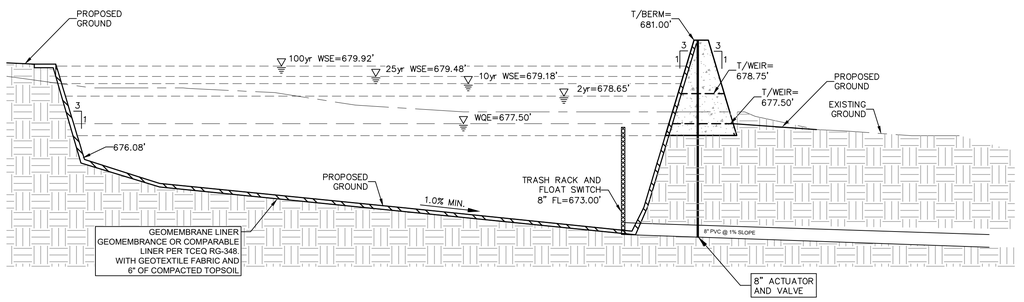
Calculations from RG-348 Pages 3-36 to 3-37

Off-site area draining to BMP =	**6.15**	acres
Off-site Impervious cover draining to BMP =	**0.65**	acres
Impervious fraction of off-site area =	**0.11**	
Off-site Runoff Coefficient =	**0.13**	
Off-site Water Quality Volume =	**8128**	cubic feet
Storage for Sediment =	**18466**	
Total Capture Volume (required water quality volume(s) x 1.20) =	**110794**	cubic feet

The following sections are used to calculate the required water quality volume(s) for the selected BMP.
The values for BMP Types not selected in cell C45 will show NA.

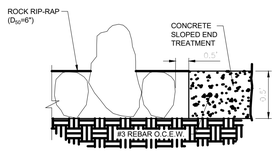
22. Batch Detention Basin Designed as Required in RG-348 Pg. 28, Addendum

Required Water Quality Volume for batch detention basin = **110794** cubic feet

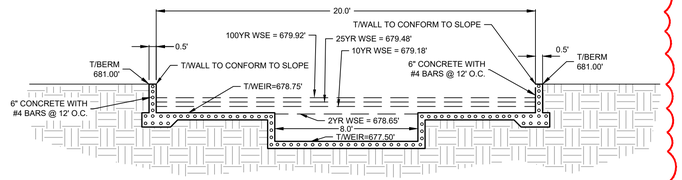


A WATER QUALITY AND DETENTION POND CROSS SECTION A–A
Scale: HORZ: 1"=30' VERT: 1"=3'

1C



ROCK RIP–RAP DETAIL
N.T.S.



B DETENTION POND OUTFALL CROSS SECTION
N.T.S

*NOTE: 20.0' WIDTH OF OPENING AT ELEVATION 678.75' CORRESPONDS TO A 12.0' WEIR AT THAT ELEVATION, SINCE THIS OPENING IS "STACKED" ON TOP OF THE 8.0' OPENING AT ELEVATION 677.50'

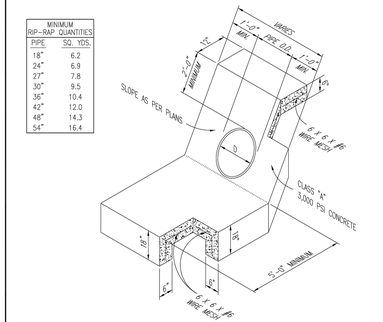
THE VEGETATIVE STABILIZATION OF AREAS DISTURBED BY CONSTRUCTION SHALL BE AS FOLLOWS:

TEMPORARY VEGETATIVE STABILIZATION:

1. FROM SEPTEMBER 15 TO MARCH 1, SEEDING SHALL BE WITH OR INCLUDE A COOL SEASON COVER CROP: (WESTERN WHEATGRASS (PASCOPYRUM SMITHII) AT 5.6 POUNDS PER ACRE, OATS (AVENA SATIVA) AT 4.0 POUNDS PER ACRE, CEREAL RYE GRAIN (SECALE CEREALE) AT 45 POUNDS PER ACRE. CONTRACTOR MUST ENSURE THAT ANY SEED APPLICATION REQUIRING A COOL SEASON COVER CROP DOES NOT UTILIZE ANNUAL RYEGRASS (LOLIUM MULTIFLORUM) OR PERENNIAL RYEGRASS (LOLIUM PERENNE). COOL SEASON COVER CROPS ARE NOT PERMANENT EROSION CONTROL.
2. FROM MARCH 2 TO SEPTEMBER 14, SEEDING SHALL BE WITH HULLED BERMUDA AT A RATE OF 45 POUNDS PER ACRE OR A NATIVE PLANT SEED MIX CONFORMING TO ITEM 604S OR 609S. A. FERTILIZER SHALL BE APPLIED ONLY IF WARRANTED BY A SOIL TEST AND SHALL CONFORM TO ITEM NO. 606S, FERTILIZER. FERTILIZATION SHOULD NOT OCCUR WHEN RAINFALL IS EXPECTED OR DURING SLOW PLANT GROWTH OR DORMANCY. CHEMICAL FERTILIZER MAY NOT BE APPLIED IN THE CRITICAL WATER QUALITY ZONE. B. HYDROMULCH SHALL COMPLY WITH TABLE 1, BELOW. C. TEMPORARY EROSION CONTROL SHALL BE ACCEPTABLE WHEN THE GRASS HAS GROWN AT LEAST 1½ INCHES HIGH WITH A MINIMUM OF 95% TOTAL COVERAGE SO THAT ALL AREAS OF A SITE THAT RELY ON VEGETATION FOR TEMPORARY STABILIZATION ARE UNIFORMLY VEGETATED, AND PROVIDED THERE ARE NO BARE SPOTS LARGER THAN 10 SQUARE FEET. D. WHEN REQUIRED, NATIVE PLANT SEEDING SHALL COMPLY WITH REQUIREMENTS OF THE CITY OF AUSTIN ENVIRONMENTAL CRITERIA MANUAL, AND STANDARD SPECIFICATION 604S OR 609S.

TABLE 1: HYDROMULCHING FOR TEMPORARY VEGETATIVE STABILIZATION

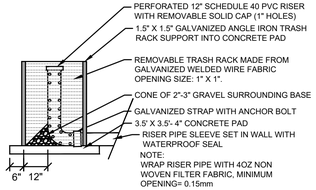
MATERIAL	DESCRIPTION	LONGEVITY	TYPICAL APPLICATIONS	APPLICATION RATE
BONDED FIBER MATRIX (BFM)	80% ORGANIC DEFIBRATED FIBERS, 10% TACKIFIER	6 MONTHS	ON SLOPES UP TO 2:1 AND EROSIVE SOIL CONDITIONS	2,500 TO 4,000 LBS PER ACRE
FIBER REINFORCED MATRIX (FRM)	65% ORGANIC DEFIBRATED FIBERS, 25% REINFROCED FIBERS OR LESS, 10 % TACKIFIER	UP TO 12 MONTHS	ON SLOPES UP TO 1:1 AND EROSIVE SOIL CONDITIONS	3,000 TO 4,500 LBS PER ACRE (SEE MANUFACTURERS RECOMMENDATIONS



NOTES:
1. WHEN HEADWALLS AND WINGWALLS ARE REQUIRED, THEY SHALL CONFORM TO THE TEXAS DEPARTMENT OF TRANSPORTATION STANDARDS, OR AS DIRECTED BY THE CITY.
2. ENERGY DISSIPATERS SHALL BE REQUIRED IF PIPE VELOCITY IS GREATER THAN 5.0 F.P.S. OR AS DIRECTED BY THE CITY OF GEORGETOWN.
3. SUPPORT REINFORCING WIRE MESH REQUIRED AS SUPPORT FOR APPROACH SLAB AND SHALL BE SUPPORTED BY REBAR CHAIRS OR OTHER APPROVED METHODS.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

GEORGETOWN TEXAS	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS	ADOPTED 6/21/2006
	TYPICAL CONCRETE RIP–RAP AT PIPE	SD19
	DRAWN BY: ATS	DATE: 1/2003
	CHECKED BY: MPS	APPROVED BY: TRD



TRASH RACK/ RISER PIPE DETAIL
N.T.S.

NO.	REVISION	DATE
1C	MODIFIED DETENTION/WATER QUALITY POND AND CALCULATIONS	05/22/24

5.22.2024

STATE OF TEXAS MATTHEW A. DRINGENBERG 114250 LICENSED PROFESSIONAL ENGINEER

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P: 512.312.4336

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DRAWN BY: T.J.B.

CHECKED BY: A.C.K

WATER QUALITY AND DETENTION POND DETAILS

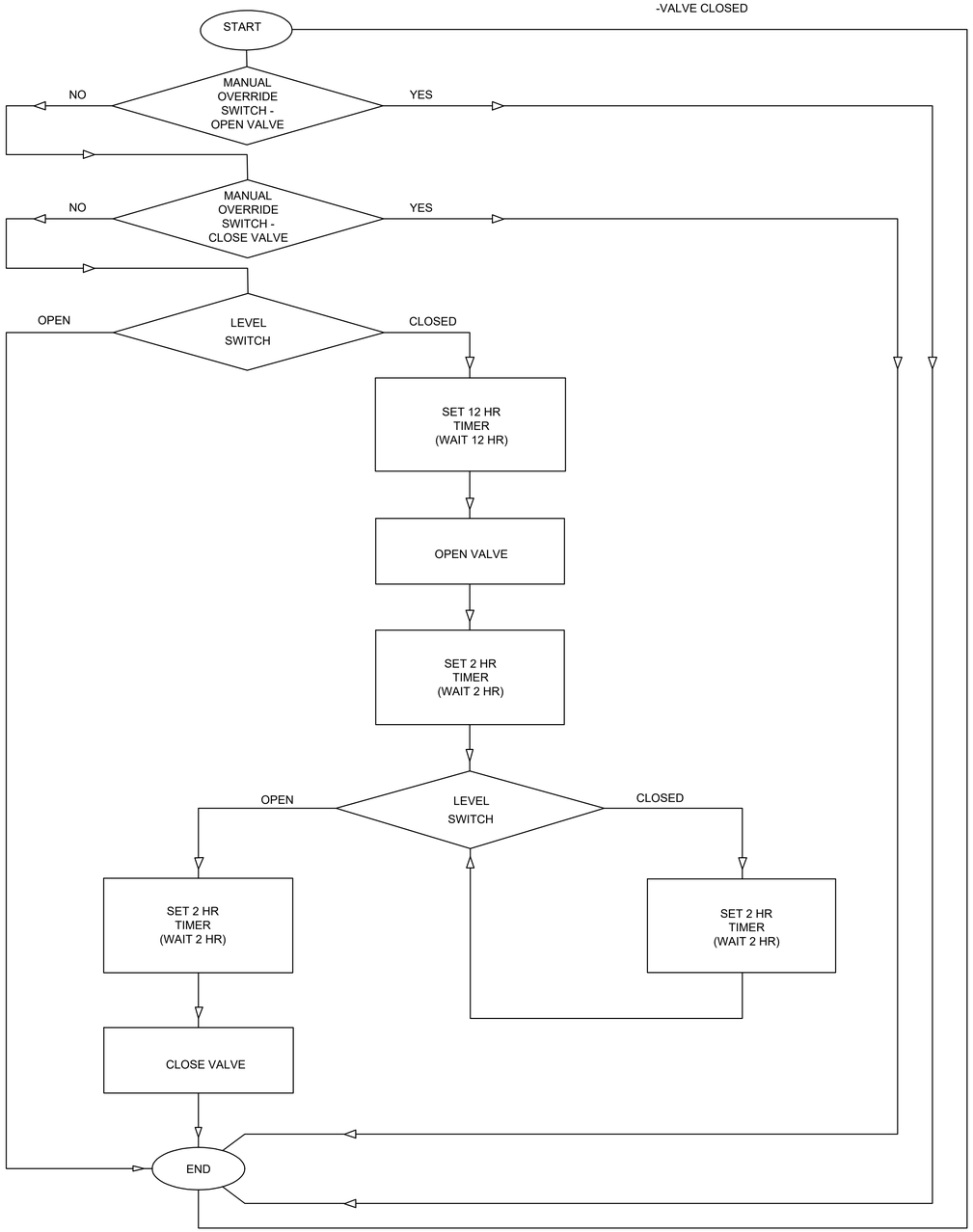
HANWHA TEXAS PLANT
3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001

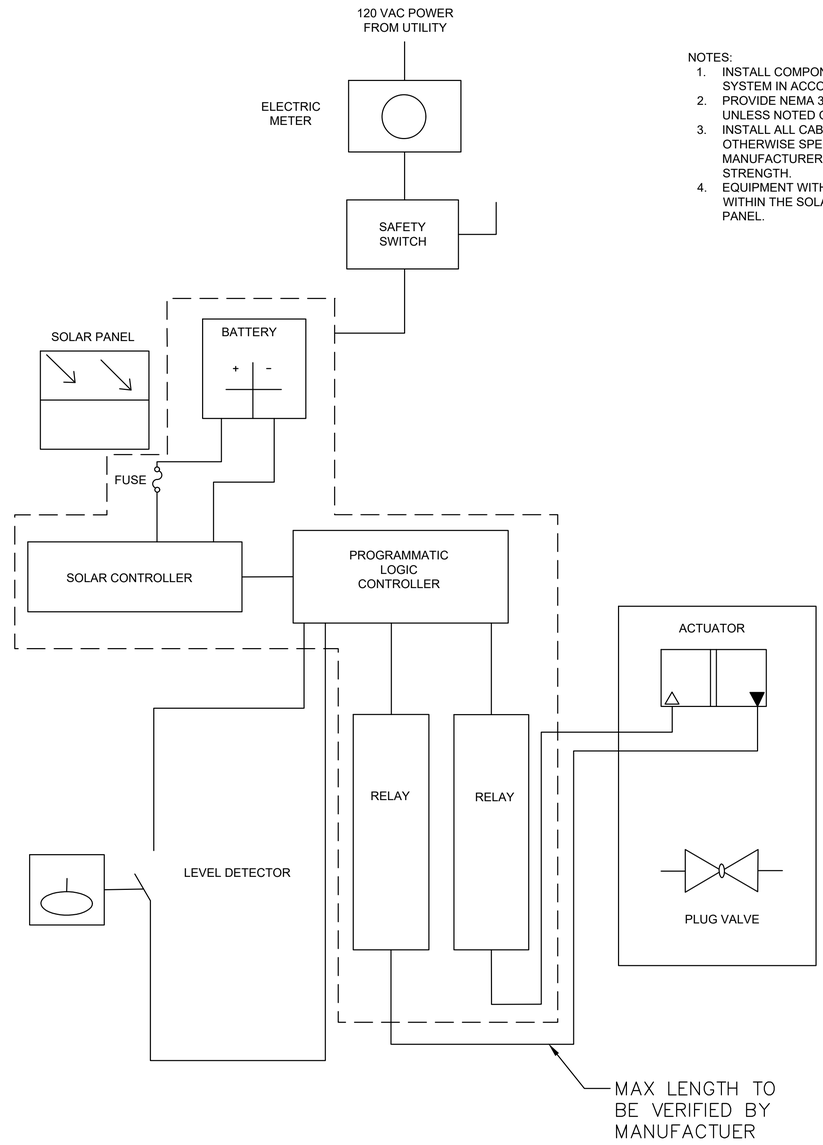
DRAWING NO.

SHEET 31 OF 46

STARTING OPERATION:
-SWITCH- OPEN
-VALVE CLOSED



LOGIC DIAGRAM



BLOCK DIAGRAM

NOTES:
1. INSTALL COMPONENTS FOR SOLAR PHOTOVOLTAIC SYSTEM IN ACCORDANCE WITH NEC.
2. PROVIDE NEMA 3R CABINETS FOR ALL EQUIPMENT, UNLESS NOTED OTHERWISE.
3. INSTALL ALL CABLES IN RIGID CONDUIT UNLESS OTHERWISE SPECIFICALLY IDENTIFIED BY THE MANUFACTURER AS DETRIMENTAL TO SIGNAL STRENGTH.
4. EQUIPMENT WITHIN DASHED LINES IS CONTAINED WITHIN THE SOLAR UPS AND BLOCK VALVE CONTROL PANEL.

TEXAS ONE CALL SYSTEM
1-800-245-4545

UNDER PENALTY OF LAW, THE CONTRACTOR IS REQUIRED TO CONTACT THE TEXAS ONE CALL SYSTEM AT LEAST 48 HOURS BEFORE STARTING EXCAVATION.

CAUTION - ELECTRICITY PRESENT

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NO.	REVISION	DATE

4.9.2024

STATE OF TEXAS
MATTHEW A. DRINGENBERG
114250
LICENSED
PROFESSIONAL ENGINEER

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WARNING
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DRAWN BY: T.J.B.

CHECKED BY: A.C.K

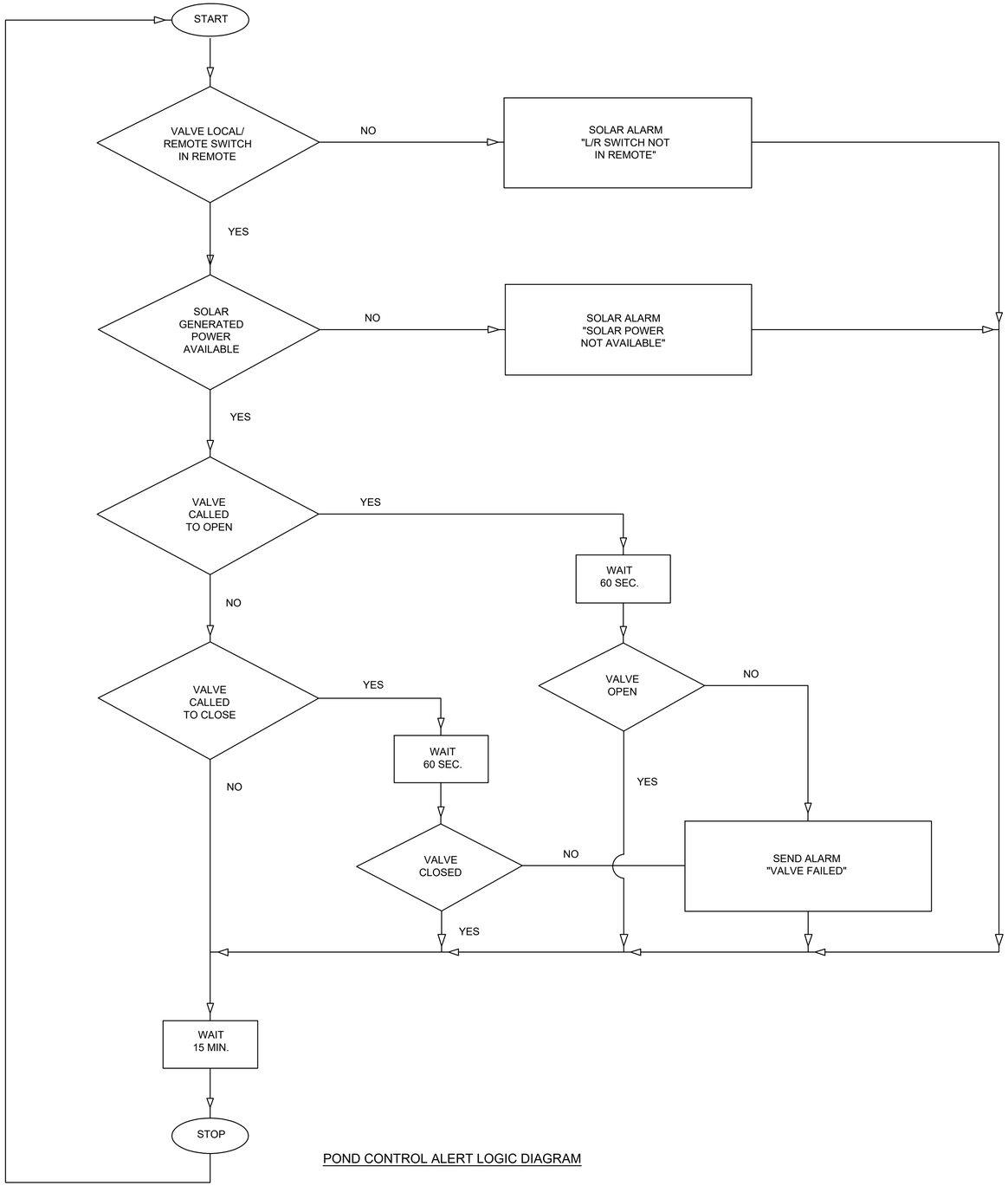
POND CONTROL LOGIC DIAGRAM

HANWHA TEXAS PLANT
3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001

DRAWING NO.

SHEET 32 OF 46



POND CONTROL ALERT LOGIC DIAGRAM

TEXAS ONE CALL SYSTEM
1-800-245-4545

UNDER PENALTY OF LAW, THE CONTRACTOR IS REQUIRED TO CONTACT THE TEXAS ONE CALL SYSTEM AT LEAST 48 HOURS BEFORE STARTING EXCAVATION.

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NO.	REVISION	DATE

4.9.2024

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DRAWN BY: T.J.B.

CHECKED BY: A.C.K

POND CONTROL ALARM LOGIC DIAGRAM

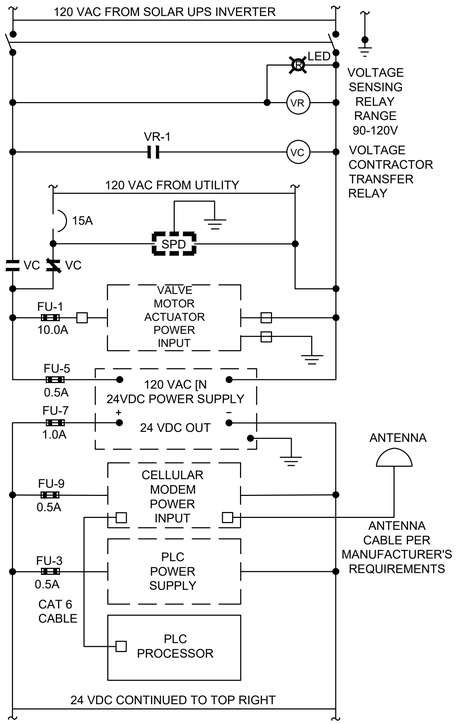
HANWHA TEXAS PLANT
3546 IH 35 N., GEORGETOWN, TX 78626

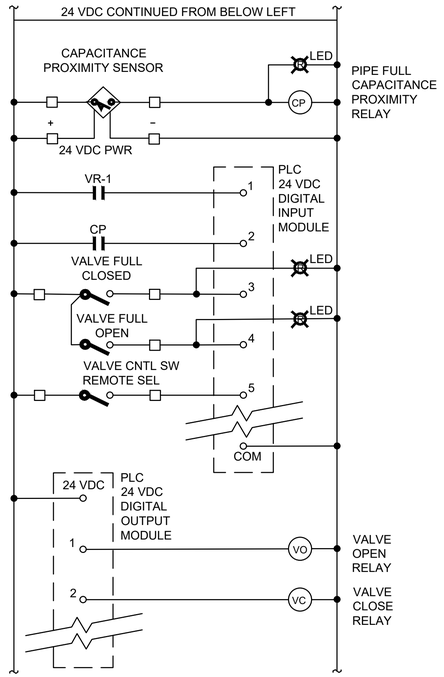
PROJECT NO. 1154-001

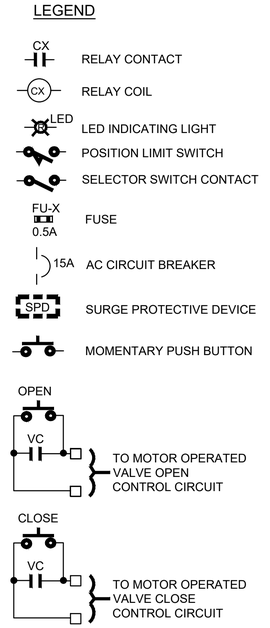
DRAWING NO.

SHEET 33 OF 46

NOTES:
1. INSTALL COMPONENTS FOR SOLAR PHOTOVOLTAIC SYSTEM IN ACCORDANCE WITH NEC.
2. PROVIDE NEMA 3R CABINETS FOR ALL EQUIPMENT, UNLESS NOTED OTHERWISE.
3. INSTALL ALL CABLES IN RIGID CONDUIT UNLESS OTHERWISE SPECIFICALLY IDENTIFIED BY THE MANUFACTURER AS DETRIMENTAL TO SIGNAL STRENGTH.







NOTES;
1. CONNECT VALVE PER MANUFACTURER'S REQUIREMENTS. PROVIDE ADDITIONAL WIRING AT VALVE AS REQUIRED.

POND LEVEL CONTROL ELEMENTARY DIAGRAM

TEXAS ONE CALL SYSTEM
1-800-245-4545

UNDER PENALTY OF LAW, THE CONTRACTOR IS REQUIRED TO CONTACT THE TEXAS ONE CALL SYSTEM AT LEAST 48 HOURS BEFORE STARTING EXCAVATION.

CAUTION - ELECTRICITY PRESENT

THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS THAT ENTER OR WORK ON THIS PROJECT ARE RESPONSIBLE FOR LOCATING, USING ONE-CALL OR THE ELECTRIC UTILITIES THEMSELVES, ALL OVERHEAD AND UNDERGROUND ELECTRICAL OF ANY NATURE AND FOR SAFEGUARDING ALL PERSONNEL ON THIS PROJECT, INCLUDING ANY OFF-SITE WORK AREAS SHOWN ON THE PLAN, FROM ANY INTERFERENCE WITH THE ELECTRIC LINES OR FROM DAMAGING, DIGGING UP OR UNCOVERING THE ELECTRIC LINES, GETTING A LADDER IN HARMS WAY OR ANY OTHER ACTIVITY OF ANY NATURE THAT COULD HARM ANY INDIVIDUAL IN ANY MANNER. THIS RESPONSIBILITY HEREBY REMOVES THE ENGINEER AND THE OWNER FROM ANY LIABILITY OF ANY NATURE.

NO.	REVISION	DATE

4.9.2024

STATE OF TEXAS
MATTHEW A. DRINGENBERG
114250
LICENSED
PROFESSIONAL ENGINEER

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P: 512.312.4336

WARNING
IF THIS BAR DOES NOT MEASURE 1", THE DRAWING IS NOT TO SCALE

DRAWN BY: T.J.B.

CHECKED BY: A.C.K

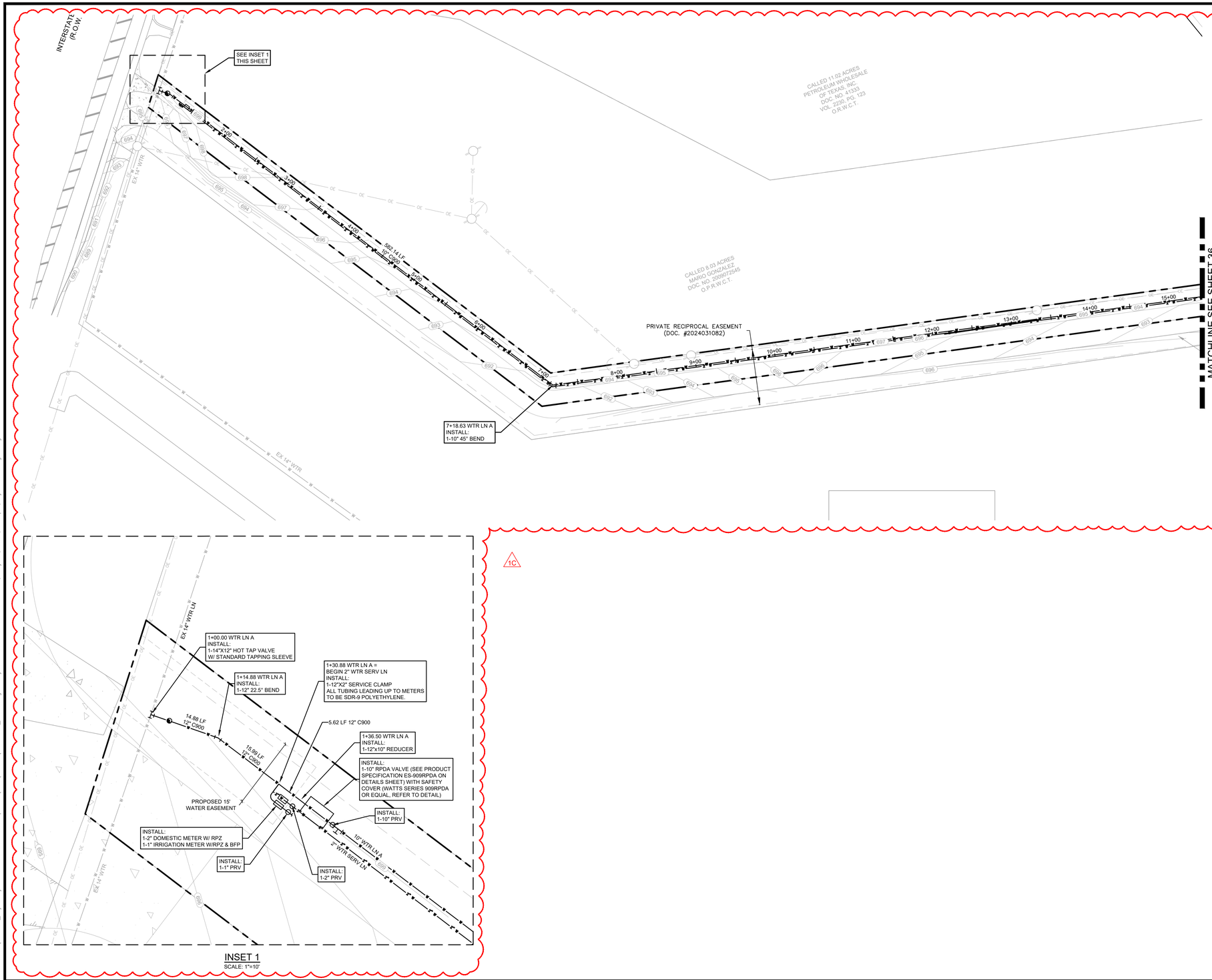
POND LEVEL CONTROL ELEMENTARY DIAGRAM

HANWHA TEXAS PLANT
3546 IH 35 N., GEORGETOWN, TX 78626

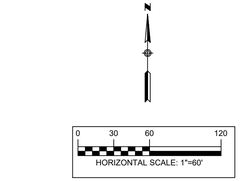
PROJECT NO. 1154-001

DRAWING NO.

SHEET 34 OF 46



INSET 1
SCALE: 1"=10'



LEGEND

- PROPERTY BOUNDARY
- EASEMENT LINE
- 700 EXISTING GROUND CONTOUR
- 700 PROPOSED GROUND CONTOUR
- PROPOSED FIRE HYDRANT
- PROPOSED WATER VALVE
- 100 TREE TO BE KEPT
- 100 PROTECTED TREE TO BE KEPT

FIRE PROTECTION NOTES:

1.APPROVAL OF THIS SITE PLAN DOES NOT IMPLY APPROVAL TO INSTALL UNDERGROUND FIRE LINES. PRIOR TO INSTALLATION OF UNDERGROUND FIRE LINES, A SEPARATE PERMIT SHALL BE SUBMITTED, UNDER GROUND FIRE LINE SUPPLY.

2.BACKFLOW PROTECTION WILL BE PROVIDED IN ACCORDANCE WITH THE CITY OF GEORGETOWN REQUIREMENTS WHEN REQUIRED. BACKFLOW PROTECTION WILL BE INSTALLED IN ACCORDANCE WITH THE DETAIL PROVIDED IN THE UTILITY DRAWINGS.

3.ALL PRIVATE FIRE LINES AND WHAT THEY PROVIDE SERVICE TO WILL BE INSTALLED IN ACCORDANCE WITH NFPA 24 INSTILLATION OF PRIVATE SERVICE MAINS AND THEIR APPURTENANCES.

4.ALL TEES, PLUGS, CAPS, BENDS, REDUCERS, VALVES SHALL BE RESTRAINED AGAINST MOVEMENT. THRUST BLOCKING AND JOINT RESTRAINED WILL BE INSTALLED IN ACCORDANCE WITH NFPA 24.

5.ALL UNDERGROUND SHALL REMAIN UNCOVERED UNTIL A VISUAL INSPECTION IS CONDUCTED BY THE GEORGETOWN FIRE MARSHAL'S OFFICE (FMO). ALL JOINT RESTRAINTS AND THRUST BLOCKING SHALL BE UNCOVERED FOR VISUAL INSPECTION.

6.ALL UNDERGROUND SHALL BE FLUSHED PER THE REQUIREMENTS OF NFPA STANDARD 24 AND WITNESSED BY GEORGETOWN FMO.

7.ALL UNDERGROUND SHALL PASS A HYDROSTATIC TEST WITNESSED BY GEORGETOWN FMO. ALL JOINTS SHALL BE UNCOVERED FOR HYDROSTATIC TESTING. ALL PIPING AND ATTACHMENTS SUBJECTED TO SYSTEM WORKING PRESSURE SHALL BE TESTED AT 200 PSI. OR 50 PSI MORE THAN THE SYSTEM WORKING PRESSURE, WHICHEVER IS GREATER, AND SHALL MAINTAIN THAT PRESSURE + OR - 5 PSI FOR 2 HOURS.

8.FENCES, LANDSCAPING, AND OTHER ITEMS WILL NOT BE INSTALLED WITHIN 3 FT, AND WHERE THEY WILL OBSTRUCT THE VISIBILITY OR ACCESS TO HYDRANTS, OR REMOTE FDCS.

9.LICENSE REQUIREMENTS OF EITHER RME-U OR G. WHEN CONNECTING BY UNDERGROUND TO THE WATER PURVEYOR'S MAIN FROM THE POINT OF CONNECTION OR VALVE WHERE THE PRIMARY PURPOSE OF WATER IS FOR FIRE PROTECTION SPRINKLER SYSTEM.

GENERAL NOTES:

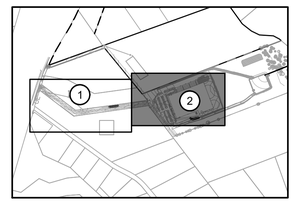
1. ALL FIRE DEPARTMENT CONNECTIONS (FDCS) SHALL BE MARKED AS APPROVED BY THE FIRE CODE OFFICIAL. TWO RED STREET LANE REFLECTORS (STIMSONITE MODEL 88AB OR SIMILAR) SHALL BE INSTALLED SIX INCHES FROM CENTERLINE OF THE FIRE APPARATUS ACCESS ROADWAY ON THE SIDE CLOSEST TO THE FDC. MARKERS SHALL BE PARALLEL TO THE FDC HAVING THE REFLECTIVE ENDS OF THE STREET MARKERS FACING THE DIRECTION OF TRAFFIC. 2012 IFC 912.7.

2. AT THE CONCLUSION OF CONSTRUCTION AND AS PART OF THE PROCESS FOR THE CITY TO ACCEPT THIS PHASE. THE FIRE HYDRANTS SHALL BE FLOWED AND TESTED A COPY OF THE REPORT SHALL BE EMAILED INTO THE FIRE DEPARTMENT AND THE HYDRANTS SHALL BE PAINTED AND COLOR CODED.

*** CAUTION IF PRESSURE REDUCING VALVES WERE INSTALLED IN THIS PHASING THEY MUST BE SET PRIOR TO FIRE HYDRANT FLOW TESTING.***

3. FLOW COLOR:

GREATER THAN 1500 GPM BLUE
1000 TO 1500 GPM GREEN
500 TO 999 GPM ORANGE
LESS THAN 500 GPM RED
NOT WORKING BLACK OR BAGGED



KEY MAP
N.T.S.

TEXAS ONE CALL SYSTEM
1-800-245-4545

UNDER PENALTY OF LAW, THE CONTRACTOR IS REQUIRED TO CONTACT THE TEXAS ONE CALL SYSTEM AT LEAST 48 HOURS BEFORE STARTING EXCAVATION.

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NO.	REVISION	DATE
1C	REVISED WATER LINES	05/22/24

5.22.2024

STATE OF TEXAS
MATTHEW A. DRINGENBERG
114250
LICENSED
PROFESSIONAL ENGINEER

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DRAWN BY: T.J.B.

CHECKED BY: A.C.K

WATER PLAN (1 OF 2)

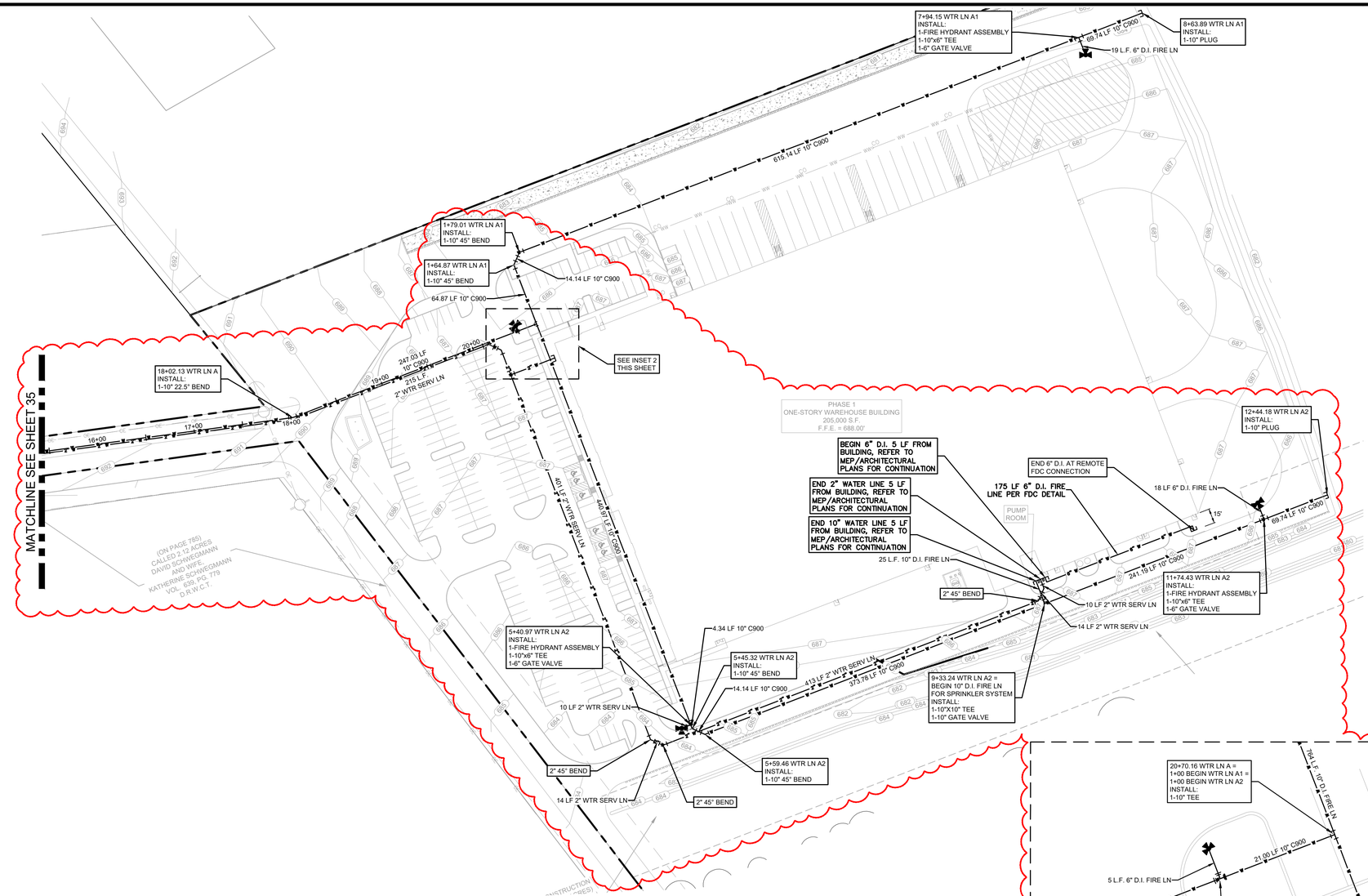
HANWHA TEXAS PLANT

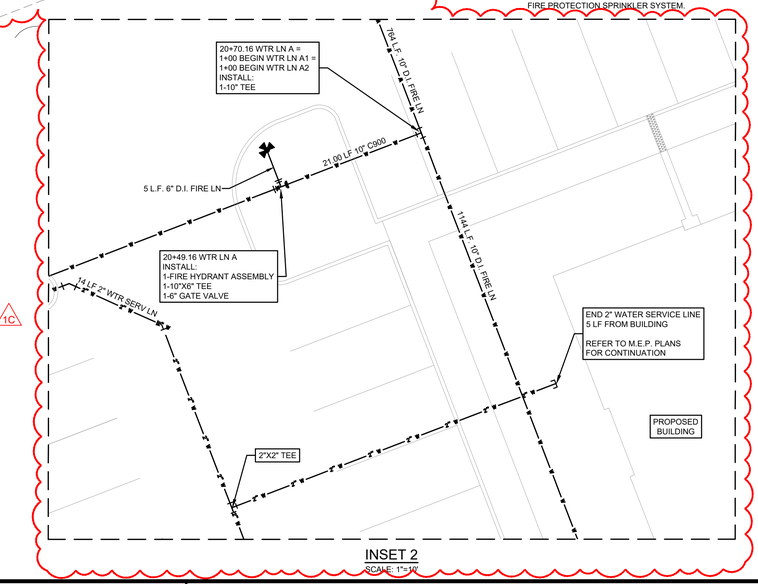
3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001

DRAWING NO.

SHEET 35 OF 46





INSET 2
SCALE: 1"=10'

0 30 60 120
HORIZONTAL SCALE: 1"=60'

LEGEND

- PROPERTY BOUNDARY
- EASEMENT LINE
- 700 EXISTING GROUND CONTOUR
- 700 PROPOSED GROUND CONTOUR
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- 100 TREE TO BE KEPT
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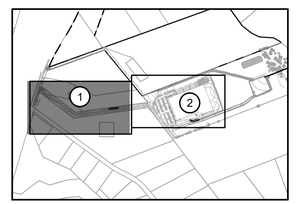

KEY MAP
N.T.S.

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NO.	REVISION	DATE
1C	REVISED WATER LINES	05/22/24

5.22.2024
STATE OF TEXAS
MATTHEW A. DRINGENBERG
114250
LICENSED
PROFESSIONAL ENGINEER

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DRAWN BY: T.J.B.

CHECKED BY: A.C.K

WATER PLAN (2 OF 2)

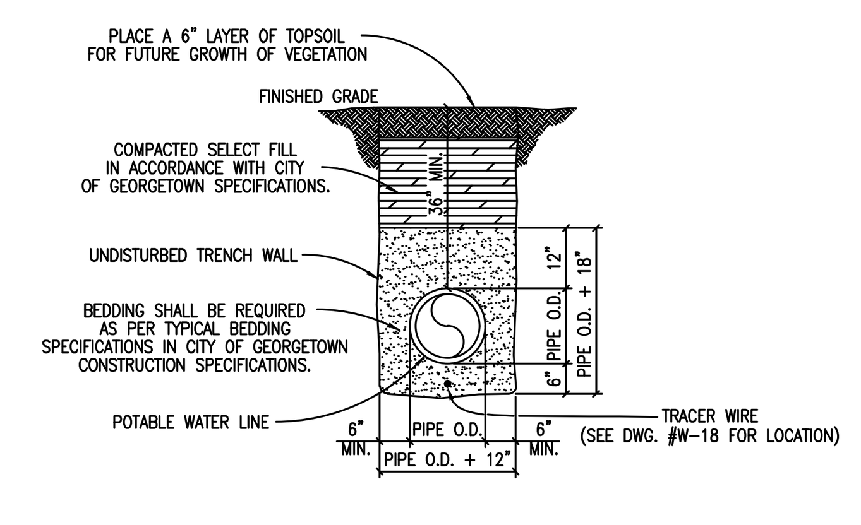
HANWHA TEXAS PLANT

3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001

DRAWING NO.

SHEET 36 OF 46

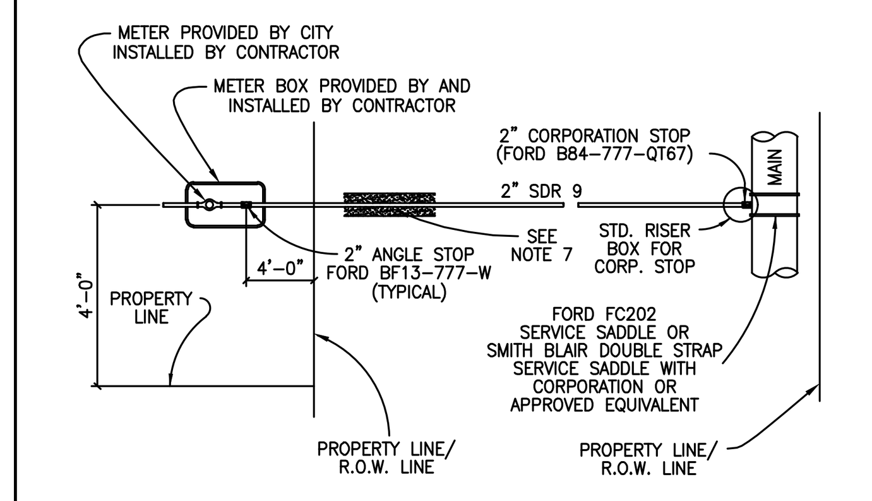


TRENCH WIDTHS
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TRENCH AND EMBEDMENT DETAIL UNDER NON-PAVED AREAS
W02

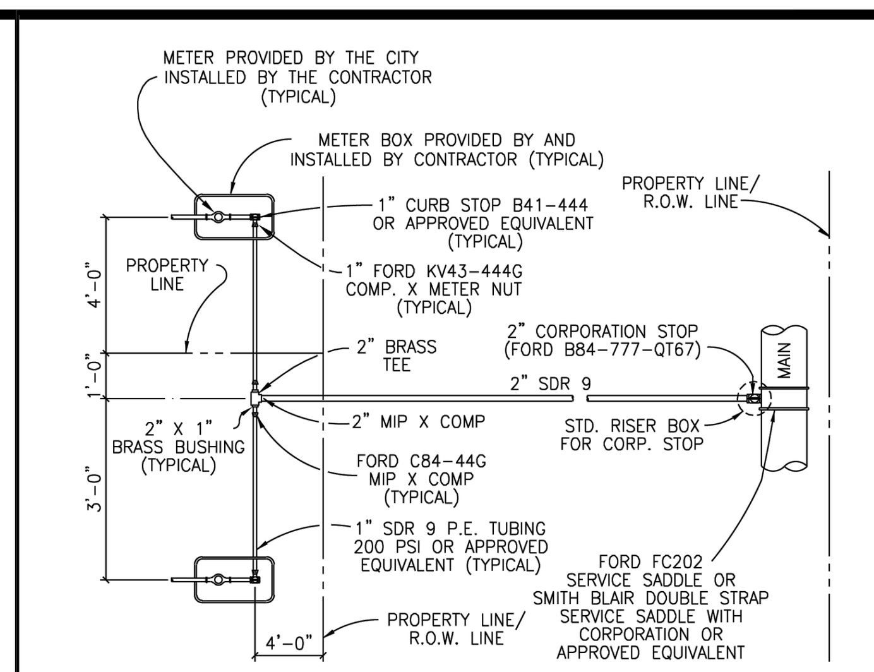


NOTES:
1. AUTHORIZED SERVICE LINE MATERIAL: POLYETHYLENE TUBING SHALL BE SDR-9. CLASS 200, SDR TUBING SHALL HAVE STAINLESS STEEL STIFFENERS.
2. ANGLE STOP SHALL BE 1" MINIMUM.
3. 1" ANGLE STOPS WITH 3/4" VALVES SHALL NOT BE PERMITTED.
4. MULTIPLE SERVICE/METER INSTALLATIONS OF MORE THAN 4 METERS PER SERVICE AND SERVICE LINES LARGER THAN 2" IN DIAMETER SHALL BE HANDLED ON AN INDIVIDUAL BASIS.
5. ANGLE STOPS 1 1/2" AND 2" IN SIZE SHALL BE PROVIDED WITH BOTH A LOCKING CAP AND METER FLANGE.
6. ANGLE STOPS SHALL BE INSTALLED 8" BELOW FINISHED GRADE AND MARKED WITH A 2" X 2" X 48" TREATED WOOD STAKE, PAINTED BLUE.
7. BEDDING MATERIAL AS PER CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS.
8. CASING REQUIREMENTS FOR SERVICE LINES CROSSING ROADWAYS SEE DETAIL W-03 NOTE #7.
9. ANY VARIATIONS ON FITTINGS MUST BE APPROVED BY THE CITY ENGINEER.
10. ALL SERVICE LINES SHALL BE PLACED 90° PERPENDICULAR TO THE ROADWAY.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

ADOPTED 01/23/2013

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
SINGLE WATER SERVICE PLAN
W04 — SCALE: NTS — DATE: 1/2013 — DRAWN BY: - — APPROVED BY: MH



NOTES:
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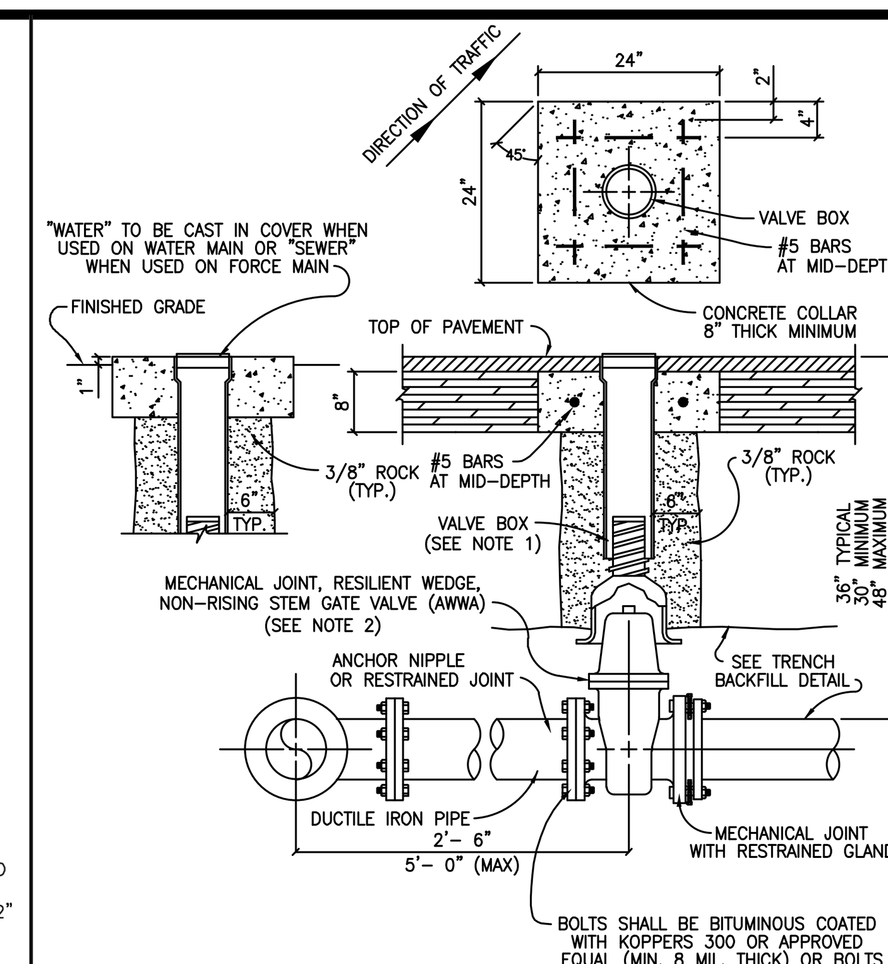
7. BEDDING MATERIAL AS PER CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS.
8. CASING REQUIREMENTS FOR SERVICE LINES CROSSING ROADWAYS SEE DETAIL W-03 NOTE #7.
9. ANY VARIATIONS ON FITTINGS MUST BE APPROVED BY THE CITY ENGINEER.
10. ALL SERVICE LINES SHALL BE PLACED 90° PERPENDICULAR TO THE ROADWAY.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

ADOPTED 01/23/2013

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
DOUBLE WATER SERVICE PLAN
W05 — SCALE: NTS — DATE: 1/2013 — DRAWN BY: - — APPROVED BY: MH

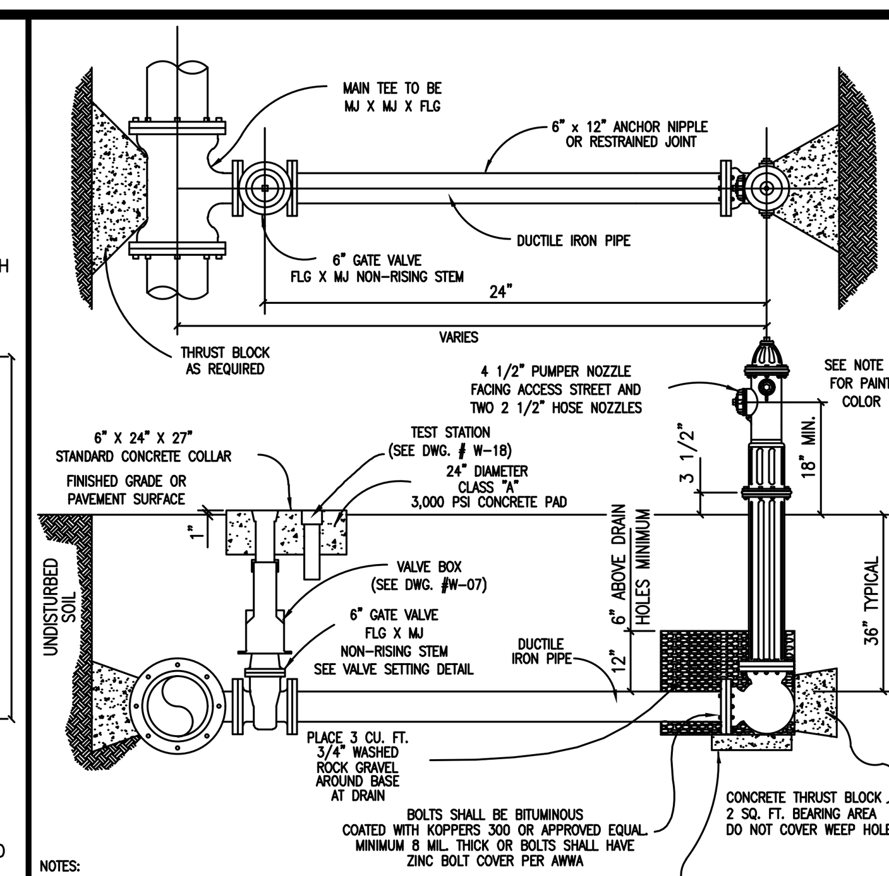


NOTES:
1. VALVE BOX SHALL BE 5 1/4" CAST IRON ADJUSTABLE HAVING AN ADJUSTABLE RANGE OF + OR - 6 INCHES FROM INSTALLED FINISH GRADE.
2. ACCEPTABLE GATE VALVES ARE:
   A. AMERICAN FLOW CONTROL - SERIES 2500
   B. MUELLER - 2360 SERIES
   C. CLOW

The Architect/Engineer assumes responsibility for appropriate use of this standard.

ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TYPICAL VALVE SETTING
W07 — SCALE: NTS — DATE: 1/2003 — DRAWN BY: MRS — APPROVED BY: TRB

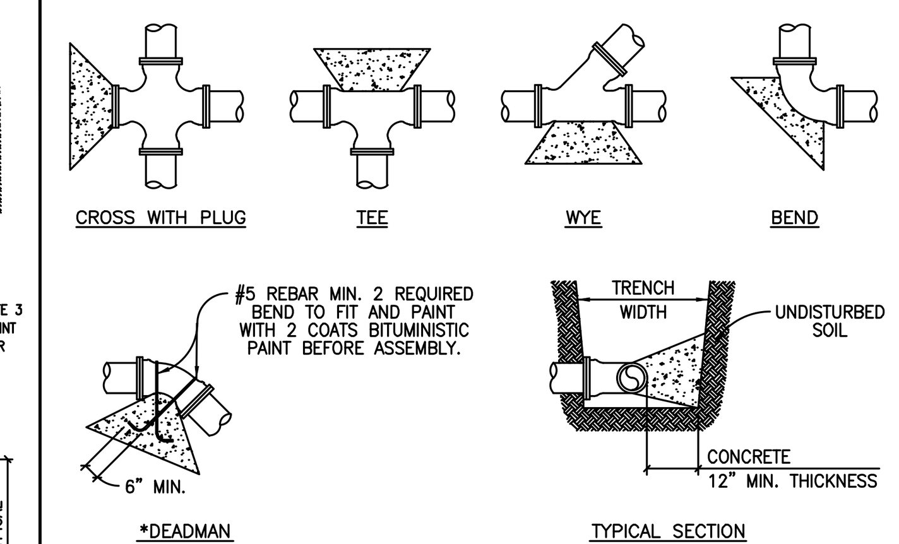


NOTES:
1. FIRE HYDRANT SHALL BE INSTALLED ON SAME SIDE OF ROAD AS WATER MAIN.
2. FIRE HYDRANT SHALL BE INSTALLED PLUMB AND TRUE.
3. ALL FIRE HYDRANT EXTERIORS SHALL BE FACTORY PRIMED AND PAINTED SILVER USING A HIGH GRADE ENAMEL.
4. HEEL AND THRUST BLOCKS TO REST IN UNDISTURBED SOIL.
5. THE ONLY FIRE HYDRANTS ACCEPTABLE ARE:
   A. KENNEDY - K81
   B. AMERICAN DARLING - B84B
   C. CLOW MEDALLION
6. DOUBLE BLUE REFLECTOR "HYE-LITES" BRAND, MANUFACTURED BY PAVEMENT MARKERS INC. TO BE INSTALLED AT CENTERLINE OF STREET PERPENDICULAR TO HYDRANT.
7. ALL METALLIC PIPES AND FITTINGS SHALL BE WRAPPED WITH 8 MILL. POLYETHELENE FILM.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TYPICAL FIRE HYDRANT INSTALLATION
W10 — SCALE: NTS — DATE: 1/2003 — DRAWN BY: MRS — APPROVED BY: TRB



ALL THRUST BLOCKS SHALL BE FORMED. LAID FORMS SHALL BE INSPECTED BY THE CITY OF GEORGETOWN PRIOR TO THE POURING OF CONCRETE AND SHALL ALSO BE INSPECTED BY THE CITY OF GEORGETOWN PRIOR TO COVERING. TYPICAL LOCATIONS WHICH REQUIRE CONCRETE REACTION (THRUST) BLOCKS, FOR PRESSURE MAINS FOUR INCHES (4") AND GREATER. CONCRETE SHALL HAVE 2,500 P.S.I. MINIMUM STRENGTH AT TWENTY EIGHT (28) DAYS AND BEAR AGAINST UNDISTURBED STABLE SOILS, AREA OF CONTACT SHALL BE GOVERNED BY PIPE SIZE, MAXIMUM PRESSURE IN PIPE, AND BEARING CAPACITY OF SOIL. PROTECT FITTINGS, BOLTS, ETC. BY COVERING WITH VISQUEEN OR OTHER ACCEPTABLE MATERIAL. CONCRETE SHALL BE A MINIMUM OF TWELVE INCHES (12") THICK.

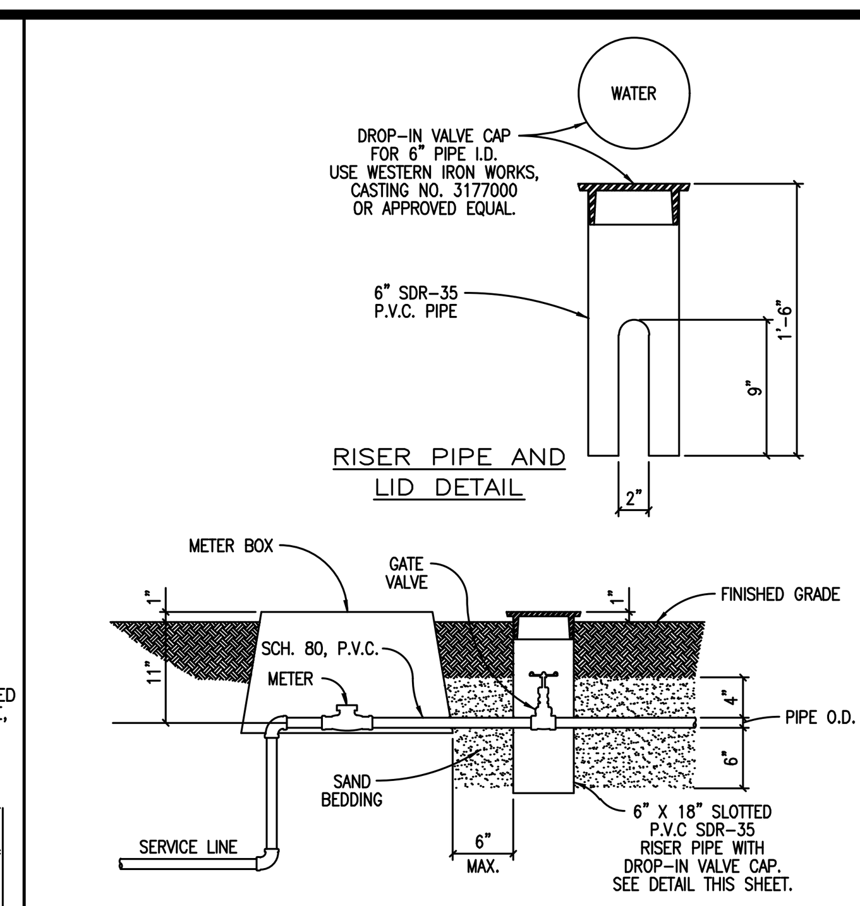
PIPE SIZE	THRUST BLOCK AREA REQUIRED	PIPE SIZE	THRUST BLOCK AREA REQUIRED	REMARKS
4"	2.0 SQ. FT.	18"	30.0 SQ. FT.	VALUES ARE FOR 90° BENDS, BASED ON 2000 P.S.F. SAFE BEARING LOAD AND PIPE PRESSURE OF 150 P.S.I. PLUS 33% SAFETY FACTOR FOR OTHER SOILS AND PRESSURES, THE AREA REQUIRED IS IN DIRECT PROPORTION.
6"	4.0 SQ. FT.	20"	37.0 SQ. FT.	
8"	6.6 SQ. FT.	24"	53.0 SQ. FT.	
10"	10.0 SQ. FT.	27"	80.0 SQ. FT.	
12"	14.0 SQ. FT.	30"	98.0 SQ. FT.	
14"	18.0 SQ. FT.	36"	127.0 SQ. FT.	
16"	24.0 SQ. FT.			

* THE ENGINEER OF RECORD SHALL CALCULATE THE SIZE OF THE DEADMAN REQUIRED AS WELL AS ANY INSTALLATION WHICH IS NOT COVERED BY THE ABOVE.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TYPICAL THRUST BLOCKS FOR WATER AND FORCE MAIN
W11 — SCALE: NTS — DATE: 1/2003 — DRAWN BY: MRS — APPROVED BY: TRB

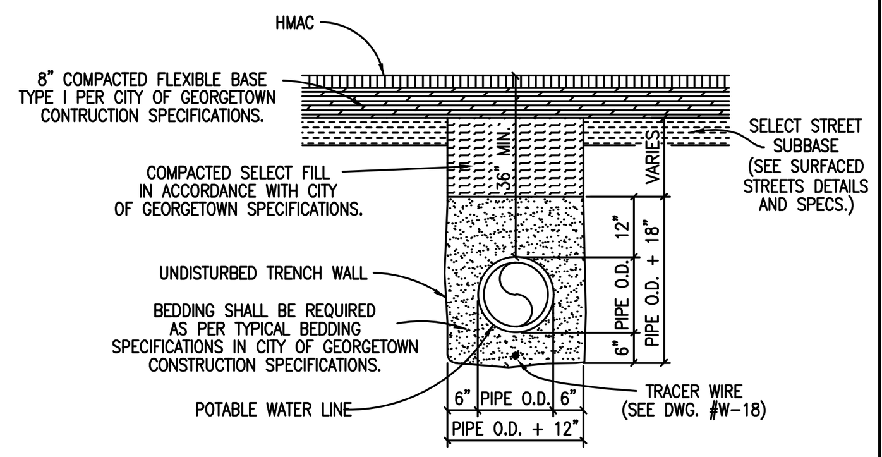


NOTES:
1. GATE VALVE SHALL BE A HAMMOND IB645, CLASS 125, BRONZE GATE, SCREWED BONNET, NON-RISING STEM, SOLID WEDGE DISC WITH THREADED ENDS OR APPROVED EQUAL.
2. DROP-IN VALVE CAP SHALL BE CAST WITH THE WORD "WATER" ON TOP.
3. USE SCHEDULE 80, M.I.P. ADAPTER AS REQUIRED.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
CUSTOMER'S CUT-OFF
W20 — SCALE: NTS — DATE: 1/2003 — DRAWN BY: MRS — APPROVED BY: TRB



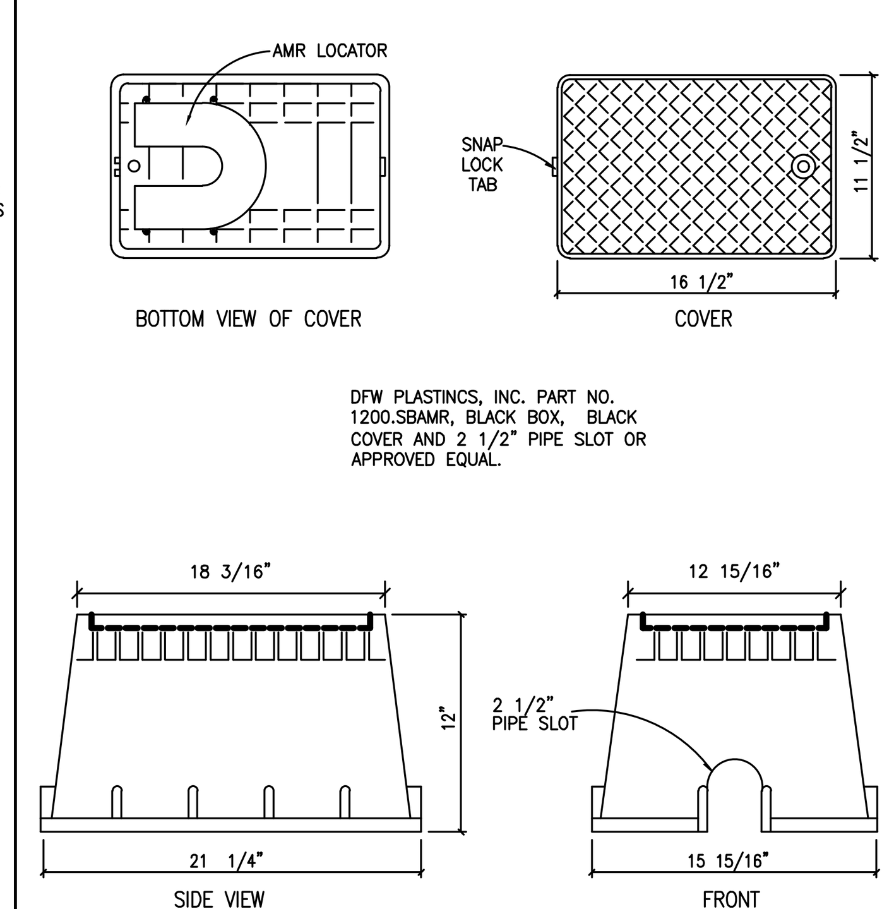
TRENCH WIDTHS
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

NOTES:
1. DENSITY TESTS SHALL BE TAKEN IN ACCORDANCE WITH THE CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS AND STANDARDS.
2. CONTRACTOR OR ENGINEER MAY USE FLOWABLE BACKFILL AS AN ALTERNATE BACKFILL MATERIAL (SEE C9 FLOWABLE BACKFILL FOR THE SPECIFICATION).

The Architect/Engineer assumes responsibility for appropriate use of this standard.

ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TRENCH AND EMBEDMENT DETAIL UNDER PROPOSED ROADWAY
W22 — SCALE: NTS — DATE: 1/2003 — DRAWN BY: MRS — APPROVED BY: TRB



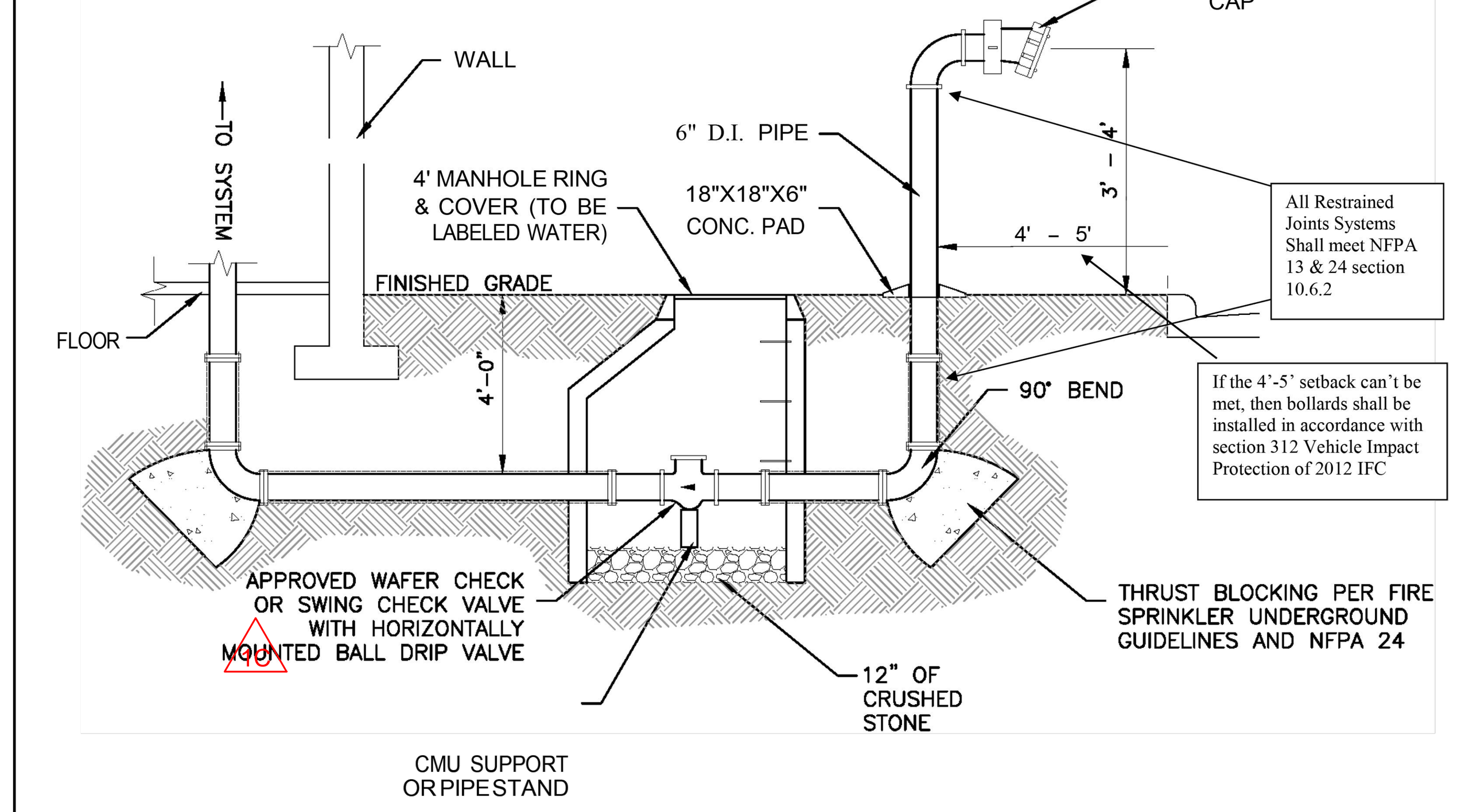
The Architect/Engineer assumes responsibility for appropriate use of this standard.

ADOPTED 6/21/2006

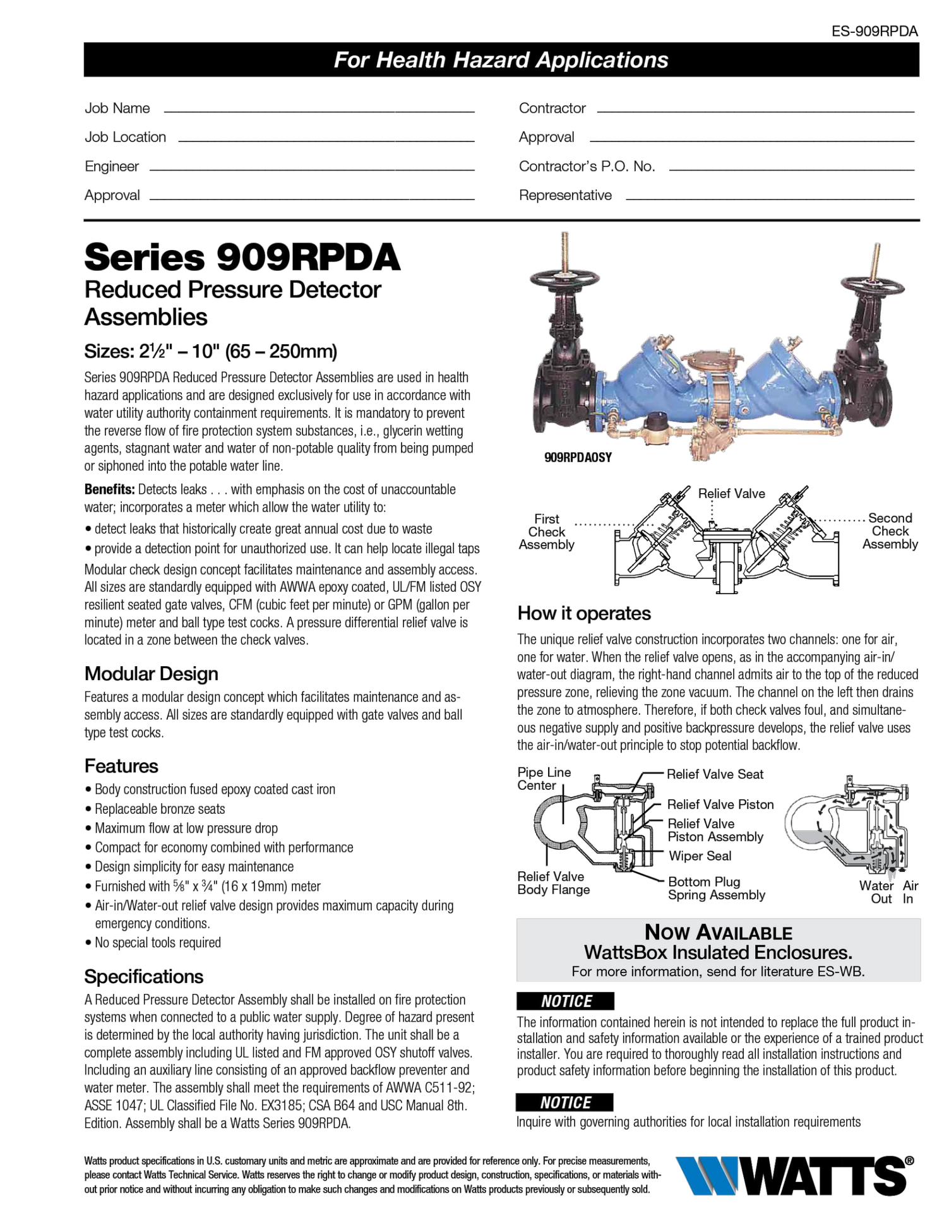
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
METER BOX (NON-TRAFFIC AREAS)
W23 — SCALE: NTS — DATE: 1/2003 — DRAWN BY: MRS — APPROVED BY: TRB

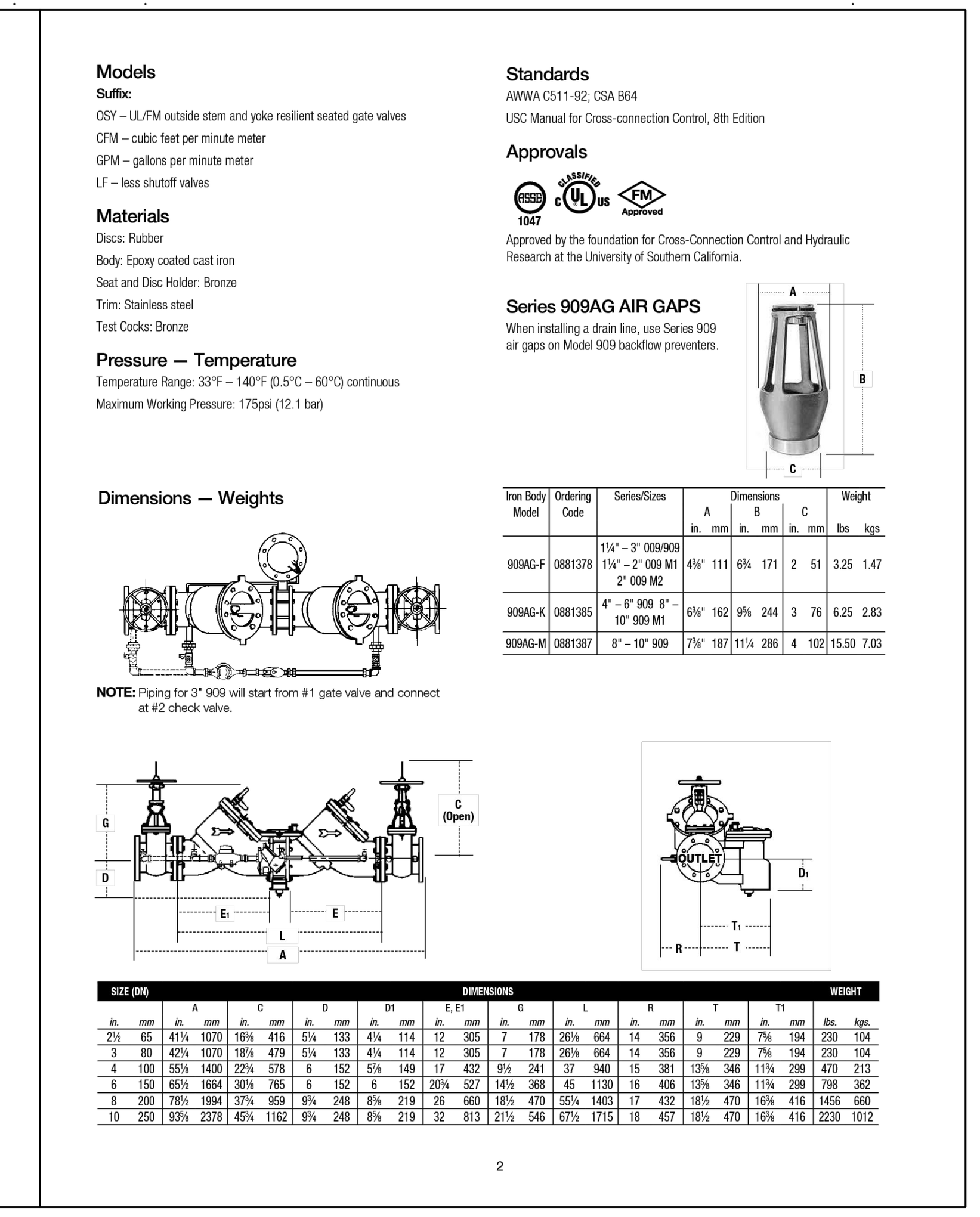
Per State Fire Marshall's Office an RME-G or U License is required in order to work on Private Fire Mains and Their Appurtenances (NFPA 24)

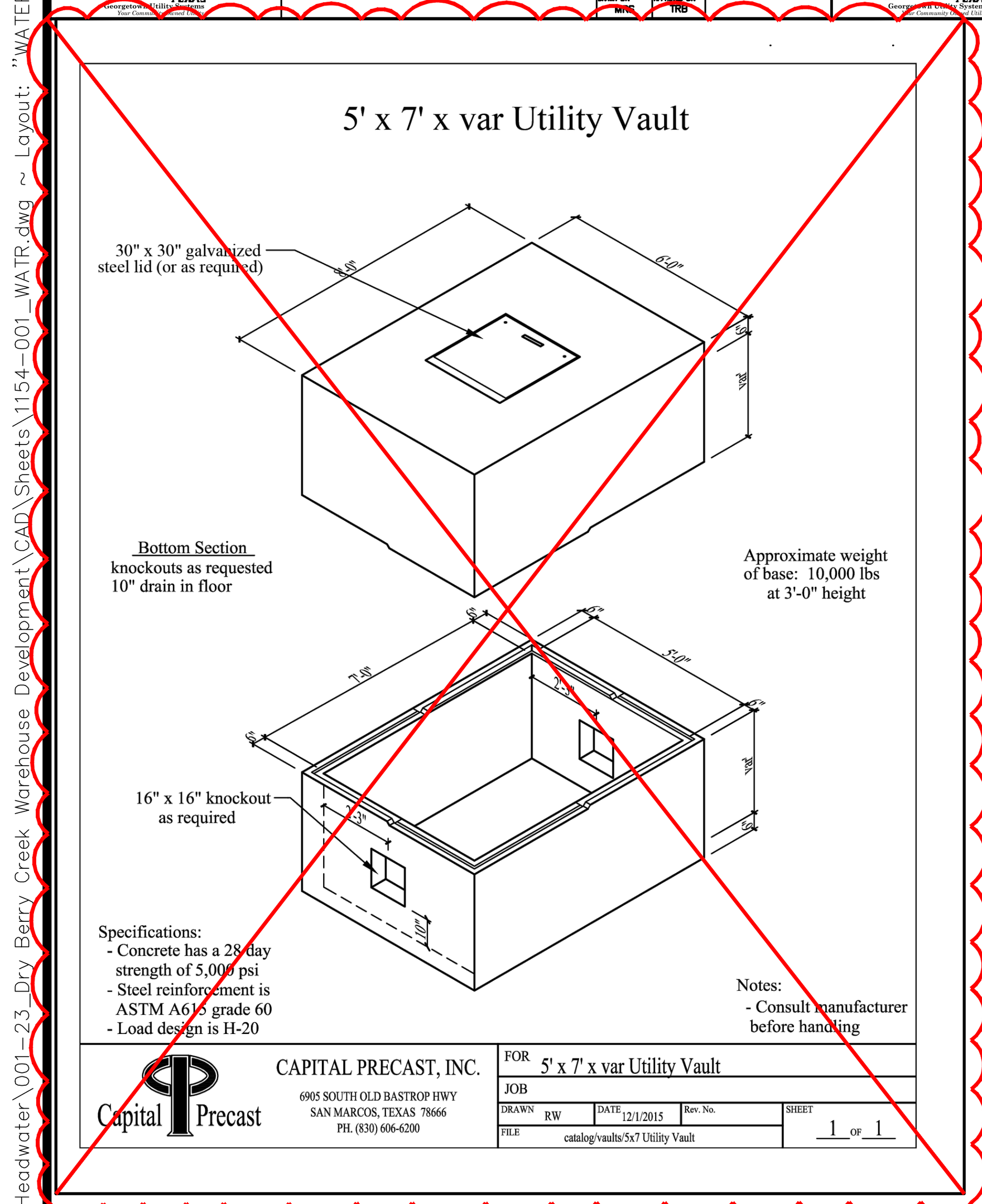
All Fire Department Connections (FDCs) shall be marked as approved by the Fire Code Official. Two red street lane reflectors (stimsonite model 88AB or similar) shall be installed six inches from centerline of the fire apparatus access roadway on the side closest to the FDC. Markers shall be parallel to the FDC having the reflective ends of the street markers facing the direction of traffic. 2012 IFC 912.7



FIRE DEPARTMENT CONNECTION
NOT TO SCALE







TEXAS ONE CALL SYSTEM
1-800-245-4545
UNDER PENALTY OF LAW, THE CONTRACTOR IS REQUIRED TO CONTACT THE TEXAS ONE CALL SYSTEM AT LEAST 48 HOURS BEFORE STARTING EXCAVATION.

CAUTION - ELECTRICITY PRESENT

THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS THAT ENTER OR WORK ON THIS PROJECT ARE RESPONSIBLE FOR LOCATING, USING ONE-CALL OR THE ELECTRIC UTILITIES THEMSELVES, ALL OVERHEAD AND UNDERGROUND ELECTRICAL OF ANY NATURE AND FOR SAFEGUARDING ALL PERSONNEL ON THIS PROJECT, INCLUDING ANY OFF-SITE WORK AREAS SHOWN ON THE PLAN, FROM ANY INTERFERENCE WITH THE ELECTRIC LINES OR FROM DAMAGING, DIGGING UP OR UNCOVERING THE ELECTRIC LINES, GETTING A LADDER IN HARMS WAY OR ANY OTHER ACTIVITY OF ANY NATURE THAT COULD HARM ANY INDIVIDUAL IN ANY MANNER. THIS RESPONSIBILITY HEREBY REMOVES THE ENGINEER AND THE OWNER FROM ANY LIABILITY OF ANY NATURE.

NO.	REVISION	DATE
1C	REMOVED VAULT DETAIL	05/22/24

5.22.2024

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Southwest Engineers
TBPE NO. F-1909
www.swengineers.com

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307 Saint Lawrence Street, Gonzales TX 78629
P: 830.672.7546 F:830.672.2034

CENTRAL TEXAS
205 Cimarron Park Loop, Ste. B, Buda TX 78610
P: 512.312.4336

WARNING
IF THIS BAR DOES NOT MEASURE 1", THE DRAWING IS NOT TO SCALE

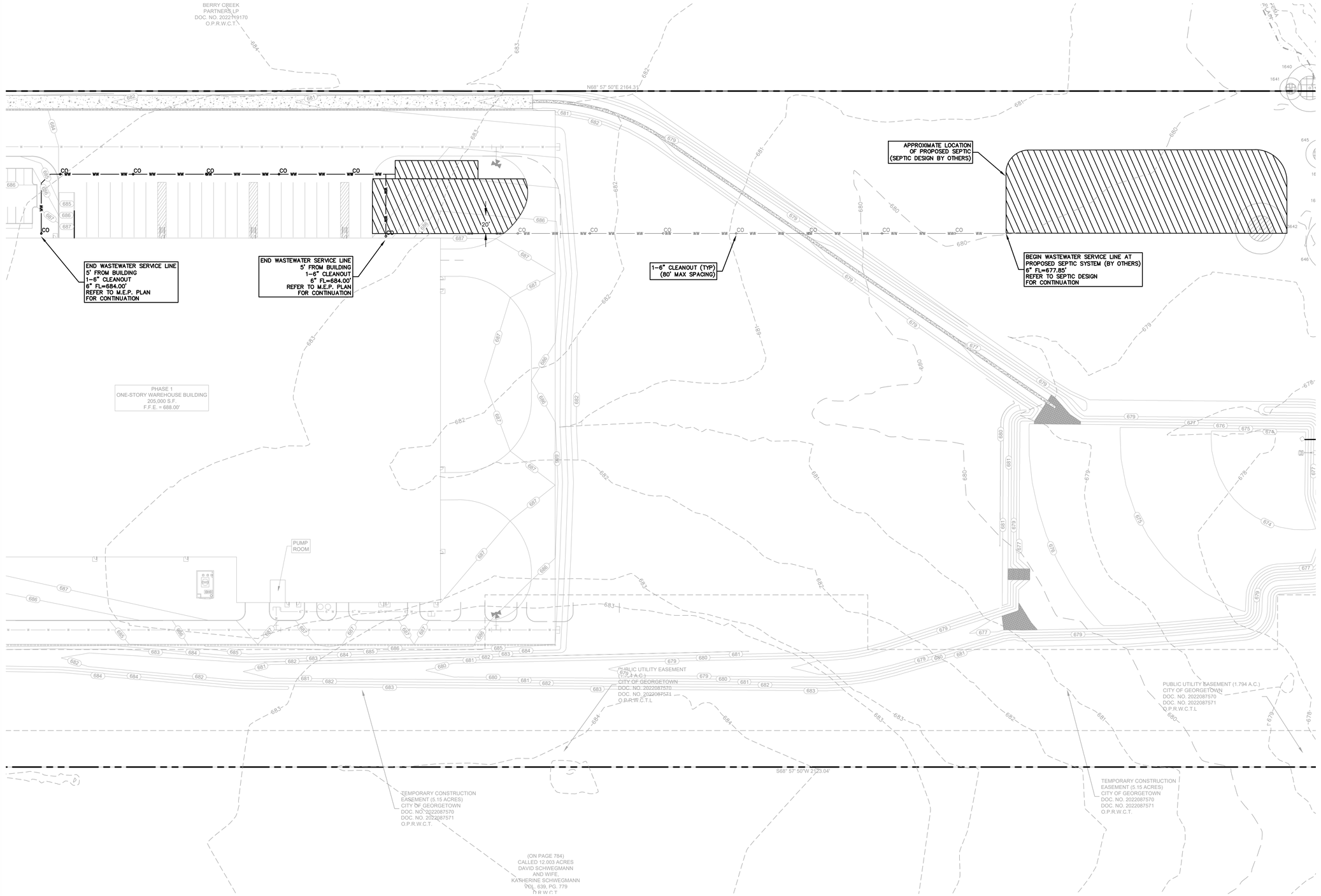
DRAWN BY: T.J.B.
CHECKED BY: A.C.K.

WATER DETAILS

HANWHA TEXAS PLANT

3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001
DRAWING NO.
SHEET 37 OF 46



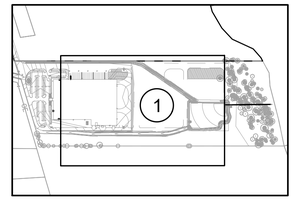
0 25 50 100
HORIZONTAL SCALE: 1"=50'

LEGEND

- PROPERTY BOUNDARY
- EASEMENT LINE
- 700 EXISTING GROUND CONTOUR
- 700 PROPOSED GROUND CONTOUR
- PROPOSED FIRE HYDRANT
- PROPOSED WATER VALVE
- 100 TREE TO BE KEPT
- 100 PROTECTED TREE TO BE KEPT
- 100 HERITAGE TREE TO BE KEPT

WASTEWATER NOTES:

1. WASTEWATER SERVICE IS NOT PROPOSED WITH THIS PLAN. A SEPTIC DESIGN AND PERMIT WILL BE OBTAINED BY THE OWNER.



KEY MAP
N.T.S.

TEXAS ONE CALL SYSTEM
1-800-245-4545

UNDER PENALTY OF LAW, THE CONTRACTOR IS REQUIRED TO CONTACT THE TEXAS ONE CALL SYSTEM AT LEAST 48 HOURS BEFORE STARTING EXCAVATION.

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NO.	REVISION	DATE

4.9.2024

STATE OF TEXAS
MATTHEW A. DRINGENBERG
114250
LICENSED
PROFESSIONAL ENGINEER

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DRAWN BY: TXJB

CHECKED BY: AKXK

PRIVATE WASTEWATER PLAN

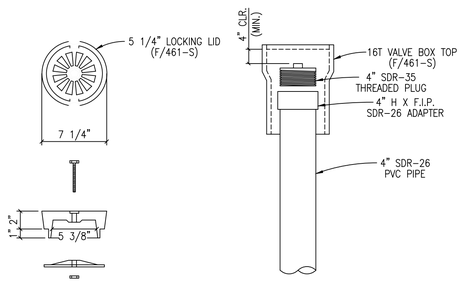
HANWHA TEXAS PLANT

3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001

DRAWING NO.

SHEET 38 OF 46



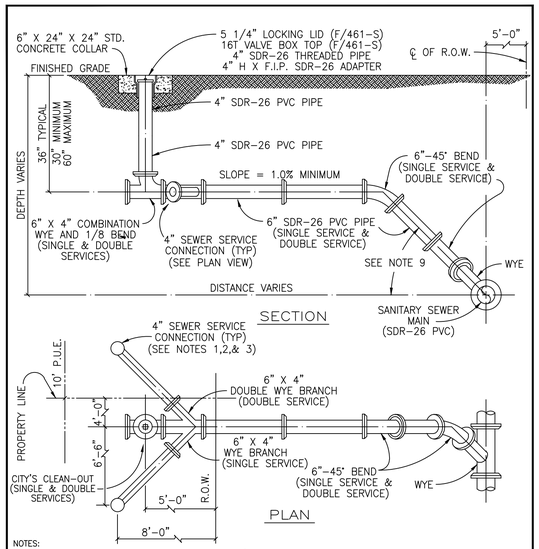
5 1/4" LOCKING LID
(F/461-S)

SEWER CLEAN-OUT
CITY OF GEORGETOWN
(RESIDENTIAL SERVICE)

The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE:	ADOPTED 6/21/2006
DRAWING NAME:	WW12
SCALE: NTS	DATE: 1/2003
DRAWN BY: MRS	APPROVED BY: TRB

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
SEWER CLEAN-OUT DETAIL



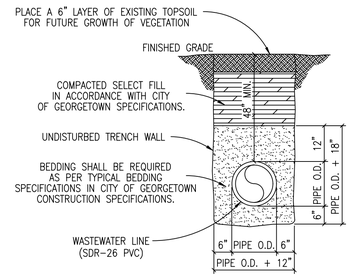
NOTES:

1. SERVICE CONNECTION RISERS SHALL TERMINATE 8' IN-SIDE THE PROPETY LINE.
2. THE END OF EACH SERVICE CONNECTION RISER SHALL BE EXTENDED 12" ABOVE FINISH GRADE.
3. EACH SERVICE CONNECTION SHALL BE PLUGGED WATER-TIGHT WITH AN APPROVED CAP OR PLUG.
4. FOR P.V.C. INSTALLATIONS, CONNECT TO EXISTING "BELL END" AND CONNECT OPPSITE END WITH P.V.C. TO P.V.C. KNOCK ON SLEEVE.
5. SOLIDLY TAMP BACKFILL AT LEAST ONE FOOT (1'-0") ABOVE TOP OF PIPE. SERVICES UNDER PAVED AREAS SHALL BE BACKFILLED TO THE SAME SPECIFICATIONS AS SHOWN ON PAVEMENT REPLACEMENT DETAIL.
6. CONTRACTOR SHALL MARK ON A CLEAN SET OF PLANS THE FINAL STATIONING OR DISTANCE AND DIRECTION FROM MANHOLE TO EACH SERVICE LATERAL AND GIVE TO ENGINEER FOR RECORD DRAWING PURPOSES.
7. ANY DEVIATION FROM THESE METHODS MUST BE APPROVED BY THE CITY OF GEORGETOWN ENGINEERING DEPARTMENT.
8. SERVICE LINE MATERIAL SHALL BE P.V.C., SDR-26.
9. SEWER SERVICE SLOPE TO BE 45° OFF CENTERLINE OF MAIN.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE:	ADOPTED 6/21/2006
DRAWING NAME:	WW13
SCALE: NTS	DATE: 1/2003
DRAWN BY: MRS	APPROVED BY: TRB

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
SEWER SERVICE CONNECTIONS



TRENCH WIDTHS
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

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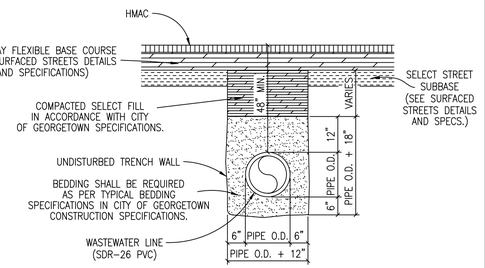
REVISION NOTE:	ADOPTED 6/21/2006
DRAWING NAME:	WW16
SCALE: NTS	DATE: 1/2003
DRAWN BY: MRS	APPROVED BY: TRB

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
TRENCH AND EMBEDMENT DETAIL UNDER NON-PAVED AREAS



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REVISION NOTE:	ADOPTED 6/21/2006
DRAWING NAME:	WW18
SCALE: NTS	DATE: 1/2003
DRAWN BY: MRS	APPROVED BY: TRB

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
TRENCH AND EMBEDMENT DETAIL UNDER PROPOSED ROADWAY

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1-800-245-4545

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DRAWN BY: T.J.B.

CHECKED BY: A.C.K

WASTEWATER DETAILS

HANWHA TEXAS PLANT
3546 IH 35 N., GEORGETOWN, TX 78626

PROJECT NO. 1154-001

DRAWING NO.

SHEET 39 OF 46