

Contributing Zone Plan Application

**4001 Brushy Creek Rd.
Cedar Park, WILLIAMSON COUNTY, TEXAS**

Prepared For:

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Walsh Brushy Creek Ranch LP

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KHA Project No. 069274118

June 24, 2024

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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: Walsh Trails Section 5 & 6					2. Regulated Entity No.:				
3. Customer Name: Christopher Walsh					4. Customer No.:				
5. Project Type: (Please circle/check one)	<input checked="" type="radio"/> New	Modification			Extension		Exception		
6. Plan Type: (Please circle/check one)	WPAP	<input checked="" type="radio"/> CZP	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: (Please circle/check one)	<input checked="" type="radio"/> Residential	Non-residential				8. Site (acres):		73.825	
9. Application Fee:	\$6,500	10. Permanent BMP(s):				Batch Detention			
11. SCS (Linear Ft.):	N/A	12. AST/UST (No. Tanks):				N/A			
13. County:	Williamson	14. Watershed:				Turkey Creek – Brushy 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.)	—	—	<u>X</u>
Region (1 req.)	—	—	<u>X</u>
County(ies)	—	—	<u>X</u>
Groundwater Conservation District(s)	<input type="checkbox"/> Edwards Aquifer Authority <input type="checkbox"/> Barton Springs/ Edwards Aquifer <input type="checkbox"/> Hays Trinity <input type="checkbox"/> Plum Creek	<input type="checkbox"/> Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	<input type="checkbox"/> Austin <input type="checkbox"/> Buda <input type="checkbox"/> Dripping Springs <input type="checkbox"/> Kyle <input type="checkbox"/> Mountain City <input type="checkbox"/> San Marcos <input type="checkbox"/> Wimberley <input type="checkbox"/> Woodcreek	<input type="checkbox"/> Austin <input type="checkbox"/> Bee Cave <input type="checkbox"/> Pflugerville <input type="checkbox"/> Rollingwood <input type="checkbox"/> Round Rock <input type="checkbox"/> Sunset Valley <input type="checkbox"/> West Lake Hills	<input type="checkbox"/> Austin <input checked="" type="checkbox"/> Cedar Park <input type="checkbox"/> Florence <input type="checkbox"/> Georgetown <input type="checkbox"/> Jerrell <input type="checkbox"/> Leander <input type="checkbox"/> Liberty Hill <input type="checkbox"/> Pflugerville <input type="checkbox"/> Round Rock

San Antonio Region					
County:	Bexar	Comal	Kinney	Medina	Uvalde
Original (1 req.)	—	—	—	—	—
Region (1 req.)	—	—	—	—	—
County(ies)	—	—	—	—	—
Groundwater Conservation District(s)	<input type="checkbox"/> Edwards Aquifer Authority <input type="checkbox"/> Trinity-Glen Rose	<input type="checkbox"/> Edwards Aquifer Authority	<input type="checkbox"/> Kinney	<input type="checkbox"/> EAA <input type="checkbox"/> Medina	<input type="checkbox"/> EAA <input type="checkbox"/> Uvalde
City(ies) Jurisdiction	<input type="checkbox"/> Castle Hills <input type="checkbox"/> Fair Oaks Ranch <input type="checkbox"/> Helotes <input type="checkbox"/> Hill Country Village <input type="checkbox"/> Hollywood Park <input type="checkbox"/> San Antonio (SAWS) <input type="checkbox"/> Shavano Park	<input type="checkbox"/> Bulverde <input type="checkbox"/> Fair Oaks Ranch <input type="checkbox"/> Garden Ridge <input type="checkbox"/> New Braunfels <input type="checkbox"/> Schertz	NA	<input type="checkbox"/> 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.

Benjamin L. Green, P.E.

Print Name of Customer/Authorized Agent



05/28/2024

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):

Contributing Zone Plan Application

Texas Commission on Environmental Quality

for Regulated Activities on the Contributing Zone to the Edwards Aquifer and Relating to 30 TAC §213.24(1), 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 Contributing Zone Plan Application is hereby submitted for TCEQ review and Executive Director approval. The application was prepared by:

Print Name of Customer/Agent: Benjamin L. Green, P.E.

Date: 05/28/24

Signature of Customer/Agent:



Regulated Entity Name: Walsh Trails Section 5 & 6

Project Information

1. County: Williamson County
2. Stream Basin: Brazos River Basin
3. Groundwater Conservation District (if applicable): N/A
4. Customer (Applicant):

Contact Person: Christopher Walsh

Entity: Walsh Brushy Creek Ranch LP

Mailing Address: 4001 Brushy Creek Rd

City, State: Cedar Park, TX

Telephone: (512) 917-4004

Email Address: christopherwalshrr@hotmail.com

Zip: 78613

Fax: _____

5. Agent/Representative (If any):

Contact Person: Benjamin L. Green, P.E.

Entity: Kimley-Horn and Associates, Inc.

Mailing Address: 5301 Southwest Parkway, Building 3, Suite 100

City, State: Austin, TX

Zip: 78735

Telephone: 512-646-2243

Fax: _____

Email Address: ben.green@kimley-horn.com

6. Project Location:

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

7. ☒ The location of the project site is described below. Sufficient detail and clarity has been provided so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation.

Located north of Brushy Creek Rd, adjacent to Brushy Creek to the east.

8. ☒ Attachment A - Road Map. A road map showing directions to and the location of the project site is attached. The map clearly shows the boundary of the project site.

9. ☒ Attachment B - USGS Quadrangle Map. A copy of the official 7 ½ minute USGS Quadrangle Map (Scale: 1" = 2000") is attached. The map(s) clearly show:

- ☒ Project site boundaries.
- ☒ USGS Quadrangle Name(s).

10. ☒ Attachment C - Project Narrative. A detailed narrative description of the proposed project is attached. 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

11. 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/Not cleared)
☐ Other: _____

12. The type of project is:

- ☒ Residential: # of Lots: 147
☐ Residential: # of Living Unit Equivalents: _____
☐ Commercial
☐ Industrial
☐ Other: _____

13. Total project area (size of site): 73.825 Acres

Total disturbed area: 52.96 Acres

14. Estimated projected population: N/A

15. The amount and type of impervious cover expected after construction is complete is shown below:

Table 1 - Impervious Cover

<i>Impervious Cover of Proposed Project</i>	<i>Sq. Ft.</i>	<i>Sq. Ft./Acre</i>	<i>Acres</i>
Structures/Rooftops	844,030	÷ 43,560 =	19.38
Parking	0	÷ 43,560 =	0
Other paved surfaces	352,858	÷ 43,560 =	8.10
Total Impervious Cover	1,196,888	÷ 43,560 =	27.48

Total Impervious Cover 27.48 ÷ Total Acreage 73.825 X 100 = 37.22% Impervious Cover

16. ☒ Attachment D - Factors Affecting Surface Water Quality. A detailed description of all factors that could affect surface water quality is attached. If applicable, this includes the location and description of any discharge associated with industrial activity other than construction.
17. ☒ Only inert materials as defined by 30 TAC 330.2 will be used as fill material.

For Road Projects Only

Complete questions 18 - 23 if this application is exclusively for a road project.

☒ N/A

18. 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.

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

- ☐ Concrete
- ☐ Asphaltic concrete pavement
- ☐ Other: _____

20. Right of Way (R.O.W.):

Length of R.O.W.: _____ feet.

Width of R.O.W.: _____ feet.

$L \times W = \text{_____ Ft}^2 \div 43,560 \text{ Ft}^2/\text{Acre} = \text{_____ acres.}$

21. Pavement Area:

Length of pavement area: _____ feet.

Width of pavement area: _____ feet.

$L \times W = \text{_____ Ft}^2 \div 43,560 \text{ Ft}^2/\text{Acre} = \text{_____ acres.}$

Pavement area _____ acres \div R.O.W. area _____ acres $\times 100 = \text{_____ \%}$ impervious cover.

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

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

23. ☐ 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

24. ☒ Attachment E - 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 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

25. ☐ Wastewater is to be discharged in the contributing zone. Requirements under 30 TAC §213.6(c) relating to Wastewater Treatment and Disposal Systems have been satisfied.

☒ N/A

26. Wastewater will be disposed of by:

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

☐ Attachment F - 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):

The sewage collection system will convey the wastewater to the _____ (name) Treatment Plant. The treatment facility is:

☐ Existing.

☐ Proposed.

☒ N/A

Permanent Aboveground Storage Tanks (ASTs) \geq 500 Gallons

Complete questions 27 - 33 if this project includes the installation of AST(s) with volume(s) greater than or equal to 500 gallons.

☒ N/A

27. Tanks and substance stored:

Table 2 - Tanks and Substance Storage

<i>AST Number</i>	<i>Size (Gallons)</i>	<i>Substance to be Stored</i>	<i>Tank Material</i>
1			
2			
3			
4			
5			

Total x 1.5 = _____ Gallons

28. ☐ The AST will be placed within a containment structure that is sized to capture one and one-half (1 1/2) times the storage capacity of the system. For facilities with more than

one tank system, the containment structure is sized to capture one and one-half (1 1/2) times the cumulative storage capacity of all systems.

- ☐ Attachment G - Alternative Secondary Containment Methods. Alternative methods for providing secondary containment are proposed. Specifications showing equivalent protection for the Edwards Aquifer are attached.

29. Inside dimensions and capacity of containment structure(s):

Table 3 - Secondary Containment

<i>Length (L)(Ft.)</i>	<i>Width(W)(Ft.)</i>	<i>Height (H)(Ft.)</i>	<i>L x W x H = (Ft3)</i>	<i>Gallons</i>

Total: _____ Gallons

30. Piping:

- ☐ All piping, hoses, and dispensers will be located inside the containment structure.
- ☐ Some of the piping to dispensers or equipment will extend outside the containment structure.
- ☐ The piping will be aboveground
- ☐ The piping will be underground

31. ☐ The containment area must be constructed of and in a material impervious to the substance(s) being stored. The proposed containment structure will be constructed of: _____.

32. ☐ Attachment H - AST Containment Structure Drawings. A scaled drawing of the containment structure is attached that shows the following:

- ☐ Interior dimensions (length, width, depth and wall and floor thickness).
- ☐ Internal drainage to a point convenient for the collection of any spillage.
- ☐ Tanks clearly labeled
- ☐ Piping clearly labeled
- ☐ Dispenser clearly labeled

33. ☐ Any spills must be directed to a point convenient for collection and recovery. Spills from storage tank facilities must be removed from the controlled drainage area for disposal within 24 hours of the spill.

- ☐ In the event of a spill, any spillage will be removed from the containment structure within 24 hours of the spill and disposed of properly.

- ☐ In the event of a spill, any spillage will be drained from the containment structure through a drain and valve within 24 hours of the spill and disposed of properly. The drain and valve system are shown in detail on the scaled drawing.

Site Plan Requirements

Items 34 - 46 must be included on the Site Plan.

34. ☒ The Site Plan must have a minimum scale of 1" = 400'.
Site Plan Scale: 1" = 150'.
35. 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): _____.
36. ☒ 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, etc. are shown on the site plan.
- ☐ The layout of the development is shown with existing contours at appropriate, but not greater than ten-foot contour intervals. Finished topographic contours will not differ from the existing topographic configuration and are not shown. Lots, recreation centers, buildings, roads, etc. are shown on the site plan.
37. ☒ A drainage plan showing all paths of drainage from the site to surface streams.
38. ☒ The drainage patterns and approximate slopes anticipated after major grading activities.
39. ☒ Areas of soil disturbance and areas which will not be disturbed.
40. ☒ Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.
41. ☒ Locations where soil stabilization practices are expected to occur.
42. ☒ Surface waters (including wetlands).
☐ N/A
43. ☒ Locations where stormwater discharges to surface water.
☐ There will be no discharges to surface water.
44. ☐ Temporary aboveground storage tank facilities.
☒ Temporary aboveground storage tank facilities will not be located on this site.

45. ☐ Permanent aboveground storage tank facilities.
☒ Permanent aboveground storage tank facilities will not be located on this site.
46. ☒ Legal boundaries of the site are shown.

Permanent Best Management Practices (BMPs)

Practices and measures that will be used during and after construction is completed.

47. ☒ Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.
☐ N/A
48. ☒ 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
49. ☒ 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
50. 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.

51. 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 I - 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.
52. ☒ Attachment J - 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.
53. ☒ Attachment K - 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.
54. ☒ Attachment L - BMPs for Surface Streams. A description of the BMPs and measures that prevent pollutants from entering surface streams is attached.
- ☐ N/A
55. ☒ Attachment M - Construction Plans. Construction plans and design calculations for the proposed permanent BMPs and measures have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer, and are signed, sealed, and dated. Construction plans for the proposed permanent BMPs and measures are

attached and include: Design calculations, TCEQ Construction Notes, all proposed structural plans and specifications, and appropriate details.

☐ N/A

56. ☒ Attachment N - Inspection, Maintenance, Repair and Retrofit Plan. A site and BMP specific plan for the inspection, maintenance, repair, and, if necessary, retrofit of the permanent BMPs and measures is attached. The plan fulfills all of the following:

- ☒ Prepared and certified by the engineer designing the permanent BMPs and measures
- ☒ Signed by the owner or responsible party
- ☒ Outlines specific procedures for documenting inspections, maintenance, repairs, and, if necessary, retrofit.
- ☒ Contains a discussion of record keeping procedures

☐ N/A

57. ☐ Attachment O - 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

58. ☒ Attachment P - 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 result in water quality degradation.

☐ N/A

Responsibility for Maintenance of Permanent BMPs and Measures after Construction is Complete.

59. ☒ 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.
60. ☒ 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,

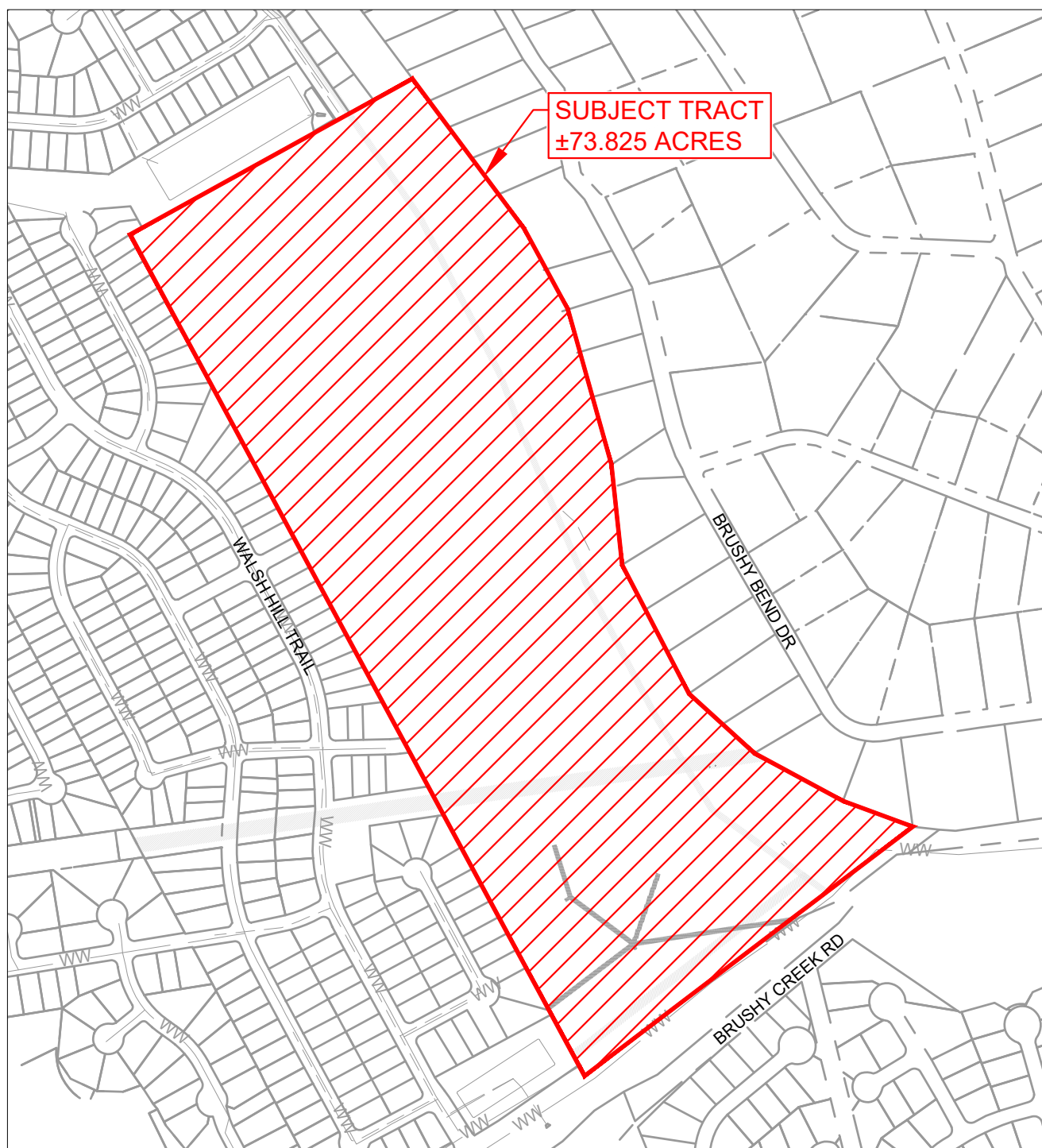
or a non-residential development such as commercial, industrial, institutional, schools, and other sites where regulated activities occur.

Administrative Information

- 61. ☒ 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.
- 62. ☒ Any modification of this Contributing Zone Plan may require TCEQ review and Executive Director approval prior to construction, and may require submission of a revised application, with appropriate fees.
- 63. ☐ The site description, controls, maintenance, and inspection requirements for the storm water pollution prevention plan (SWPPP) developed under the EPA NPDES general permits for stormwater discharges have been submitted to fulfill paragraphs 30 TAC §213.24(1-5) of the technical report. All requirements of 30 TAC §213.24(1-5) have been met by the SWPPP document.
- ☒ The Temporary Stormwater Section (TCEQ-0602) is included with the application.



ATTACHMENT A: Road Map



LOCATION MAP

SCALE: 1"=500'

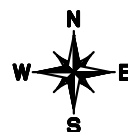
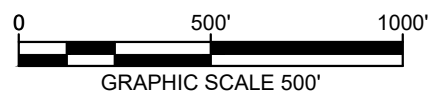
4001 Brushy Creek Rd, Cedar Park, TX 78613

Kimley»Horn

5301 Southwest Parkway, Building 2, Suite 100
Austin, Texas 78735
State of Texas Registration No. F-928

Walsh Brushy Creek Site Location Map

Cedar Park, Williamson County, Texas
May 2024



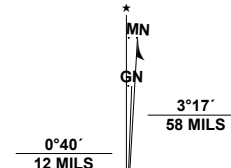
ATTACHMENT B: USGS Quadrangle Map



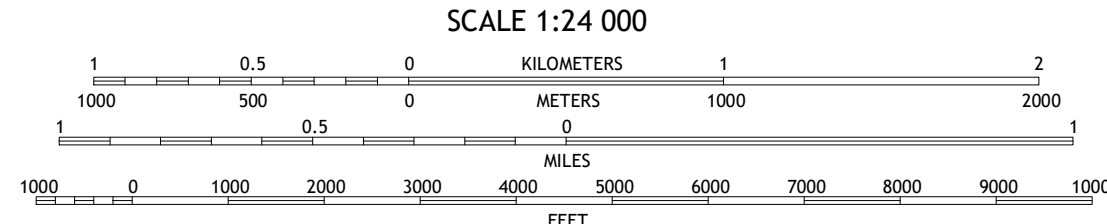
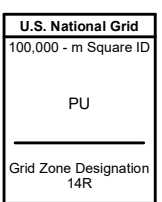
Produced by the United States Geological Survey

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, September 2016 - November 2016
Roads.....U.S. Census Bureau, 2015 - 2019
Names.....GNIS, 1979 - 2023
Hydrography.....National Hydrography Dataset, 2002 - 2020
Contours.....National Elevation Dataset, 2019
Boundaries.....Multiple sources; see metadata file 2021 - 2022
Wetlands.....FWS National Wetlands Inventory Not Available



UTM GRID AND 2023 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET



CONTOUR INTERVAL 10 FEET
NORTH AMERICAN DATUM OF 1983
This map was produced to conform with the
National Geospatial Program US Topo Product Standard.



1	2	3
4	5	6
7	8	9

ADJOINING QUADRANGLES

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

ROUND ROCK, TX
2023

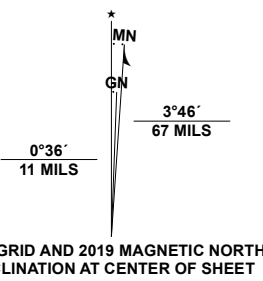




Produced by the United States Geological Survey

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, September 2016 - November 2016
Roads.....U.S. Census Bureau, 2010 - 2019
Names.....GNIS, 1979 - 2022
Hydrography.....National Hydrography Dataset, 2002 - 2020
Contours.....National Elevation Dataset, 2019
Boundaries.....Multiple sources; see metadata file
Wetlands.....FWS National Wetlands Inventory Not Available



CONTOUR INTERVAL 10 FEET
NORTH AMERICAN DATUM OF 1983
This map was produced to conform with the
National Geospatial Program US Topo Product Standard.



1	2	3
4	5	6
7	8	9

ADJOINING QUADRANGLES

1 Liberty Hill
2 Leander NE
3 Georgetown
4 Nameless
5 Round Rock
6 Mansfield Dam
7 Jollyville
8 Pflugerville West

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



ATTACHMENT C: Narrative of Proposed Modifications

The content of this narrative is based on a 73.825-acre tract of land located in the full-purpose jurisdiction of the City of Cedar Park, TX. The property is located on the north side of Brushy Creek Rd, adjacent to Brushy Creek to the east. The developer is proposing 147 lot single family development with associated roadway, utility, and drainage improvements. The site is currently the owner's homestead with no other development.

The proposed improvements include site grading, road and home construction, stormwater networks, and associated water and wastewater utilities. The proposed impervious cover is 27.48-acres of the total 73.825-acre site. To account for the additional impervious cover, three permanent BMPs are being proposed for the site in the form of batch detention ponds.

ATTACHMENT D: Factors Affecting Surface Water Quality

No industrial associated activity discharges are expected for this proposed single family residential development site. Surface water quality can be affected by disturbance during construction and by development after construction. Soil disturbance from clearing and grubbing and cut / fill operations can lead to discharge of sediment unless adequate temporary erosion control measures are in place. For this project, the use of silt fence, construction entrances, and rock berms will prevent sediment from leaving the site. Siltation collected by the control measures will be cleaned from fences, berms, etc. on a routine schedule as outlined in the SWPPP and contract specifications.

During construction, surface water quality may also be affected by a spill of hydrocarbons or other hazardous substances used in construction. The most likely instances of a spill of hydrocarbons or hazardous substances are:

- a) Refueling construction equipment.
- b) Oil and grease from the asphalt pavement and vehicle traffic.
- c) Performing operator-level maintenance, including adding petroleum, oils, or lubricants.
- d) Normal silt build-up.
- e) Unscheduled or emergency repairs, such as hydraulic fluid leaks.
- f) Trash which becomes loose from subdivision residents.
- g) Fertilizers used in the landscaping around the apartment buildings.

Every effort will be taken to be cautious and prevent spills. In the event of a fuel or hazardous substance spill as defined by the Reportable Quantities Table 1 (page 3) of the TCEQ's Small-Business Handbook for Spill Response (RG-285, June 1997), the contractor is required to clean up the spill and notify the TCEQ as required in RG-285. During business hours report spills to the TCEQ's Austin Regional Office at (512) 339-2929, after business hours call 1-800-832-8224, the Environmental Response Hotline or (512) 463-7727, the TCEQ Spill Reporting Hotline, which is also answered 24 hours a day.

After construction is complete, impervious cover for the tract of land is the major reason for degradation of water quality. Impervious cover includes the building foundations, street pavement and concrete sidewalks. Oil and fuel discharge from vehicles is anticipated. The proposed permanent BMPs on this project will help mitigate these occurrences.



ATTACHMENT E: Volume and Character of Stormwater

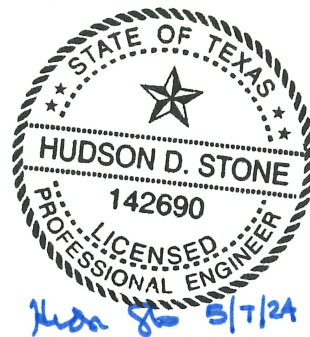
DETENTION TIMING STUDY

■ *Detention Timing Study*

Walsh Trails

City of Cedar Park, Texas

May 2024



Kimley»»Horn

TBPE Firm Registration F-928

1400 Woodloch Forest Drive, Suite 225
The Woodlands, TX 77380
Tel: (281) 475-2816

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Appendix B	Hydrology Effective Condition Drainage Area Map Revised Effective Condition Drainage Area Map Existing Site Impervious Cover Map Proposed Site Impervious Cover Map Longest Flow Path Map Atlas 14 Rainfall Hydrologic Calculations HEC-HMS Output
Appendix C	Digital Files HEC-HMS v. 3.5

Executive Summary

Walsh Trails is an approximate 70-acre site intended for single-family development located in the City of Cedar Park, Williamson County, Texas. The project is located within the Upper Brushy Creek watershed. The subject tract is shown on the attached Vicinity Map in **Appendix A**.

The purpose of this study is to analyze the impact of the proposed development on the peak flows associated with the Upper Brushy Creek watershed. Results of the analysis show that the development of the subject tract without stormwater detention will cause no adverse impact to peak flows downstream of the tract in the 10-, 25-, and 100-year storm events.

The analysis was performed using the U.S. Army Corps of Engineers' HEC-HMS v. 3.5 hydrologic modeling software. This report describes the methodology used to perform the analysis.

1.0 Introduction

1.1 AUTHORITY

Toll Bros, Inc. (the “Client”) has retained the services of Kimley-Horn and Associates, Inc. (“Kimley-Horn”) to perform a Detention Timing Study for the proposed development. This report describes the hydrologic analysis performed by Kimley-Horn to determine the peak flows through the subject reach. Acting on behalf of the Client, the contacts for this study are as follows:

Hudson Stone, P.E., CFM
Kimley-Horn and Associates, Inc.
1400 Woodloch Forest Drive, Ste 225
The Woodlands, Texas 77380
346.249.8378

Ben Green, P.E.
Kimley-Horn and Associates, Inc.
5301 Southwest Parkway, Ste 100 Bld 2
Austin, Texas 78735
512.646.2243

1.2 PURPOSE OF STUDY

The purpose of this study is to analyze the impact of the proposed development on peak flows associated with the Upper Brushy Creek watershed and determine if stormwater detention is needed to offset increases in peak flow. This report is being submitted to the City of Cedar Park as a Detention Timing Study.

1.3 LOCATION

The subject tract is approximately 70 acres and is located in the City of Cedar Park, Williamson County, Texas. The tract is bound by Brushy Creek Road to the south and is located on the northwest corner of the confluence of South Brushy Creek with Brushy Creek. Additionally, the tract is located within the western portion of the Upper Brushy Creek watershed. The subject tract and surrounding features can be seen on the attached Vicinity Map in **Appendix A**.

1.4 GENERAL SITE CHARACTERISTICS

In existing conditions, approximately all of the 70-acre subject tract drains east to Brushy Creek just upstream of its confluence with South Brushy Creek. The tract is currently undeveloped with trees and short grass. Existing residential development surrounds the tract on all sides, and the proposed development also consists of residential development as shown on the Proposed Site Plan included in **Appendix A**.

The Federal Emergency Management Agency (FEMA) identifies on-site floodplain associated with Brushy Creek and South Brushy Creek as Zone AE, which are areas of studied floodplain with established regulatory flows and Base Flood Elevations (BFEs). The Annotated FEMA FIRM Panels in **Appendix A** show the subject tract in relation to the effective FEMA floodplain.

1.5 METHODOLOGY

The FEMA effective hydrologic model for the Upper Brushy Creek watershed will serve as the effective model for this analysis. The effective model includes an existing condition basin model but does not include Atlas 14 rainfall. Kimley-Horn updated the hydrologic model to include City of Cedar Park Atlas 14 rainfall. The subject tract was broken out of the effective subbasins to create a “Revised Effective” basin model. A “Proposed” condition basin model was then created to account for the proposed development. Hydrologic analysis was performed using the U.S. Army Corps of Engineers’ Hydrologic Engineering Center’s Hydrologic Modeling System (HEC-HMS) version 3.5. hydrologic modeling software.

1.6 RESULTS

The revised effective and proposed condition peak flows determined by this study are detailed in the following sections of this report. Results of the analysis show that the proposed development of the subject tract without on-site stormwater detention will cause no adverse impact to peak flows in the Upper Brushy Creek watershed in the 10-, 25-, and 100-year storm events.

2.0 Topographic Information

2.1 TOPOGRAPHIC INFORMATION

Kimley-Horn obtained LiDAR provided through the Texas Geographic Information Office (TxGIO) to use in this analysis. The LiDAR was flown as part of the 2021 Travis & Bexar Counties grouping at a 1-foot resolution and is consistent with the NABD88 vertical datum. The topographic information was used to determine the longest flow paths and perform time of concentration calculations. The topography is displayed on the Drainage Area Maps in **Appendix B**.

3.0 Hydrology

3.1 METHODOLOGY

Kimley-Horn obtained the FEMA effective hydrologic model for the Upper Brushy Creek watershed. The effective model was developed using the U.S. Army Corps of Engineers' HEC-HMS v. 3.5. The model used the SCS Curve Number method to calculate losses and the SCS Unit Hydrograph method to calculate flows and create hydrographs. The model contains an existing condition analysis titled "UBC_Existing_All_Dams" that will be used in this study; the effective model did not include Atlas 14 rainfall.

3.2 METEOROLOGIC MODELS

Kimley-Horn added meteorologic models for the 10-, 25-, and 100-year storm events using Atlas 14 rainfall data provided by the City of Cedar Park memorandum dated 02/28/2020; sourcing is included in **Appendix B**. The depths used in this analysis can be seen below in Table 1.

Table 1: Atlas 14 Rainfall Depths

Duration	10-Year (in.)	25-Year (in.)	100-Year (in.)
5-minute	0.77	0.95	1.26
15-minute	1.54	1.89	2.51
1-hour	2.84	3.50	4.65
2-hour	3.62	4.57	6.30
3-hour	4.11	5.26	7.42
6-hour	4.93	6.39	9.17
12-hour	5.68	7.36	10.55
24-hour	6.44	8.30	11.76

3.3 REVISED EFFECTIVE CONDITION

3.3.1 Drainage Areas

The effective drainage areas can be seen on the Effective Condition Drainage Area Map in **Appendix B**. A copy of the existing basin model was made and titled "Revised Effective" to use for the revised effective condition analysis. The subject tract is contained within five effective subbasins: "BRC_210", "BRC_220", "BRC_230", "BRC_240", and "SBR_110". However, the area proposed to be developed within the tract, approximately 59 acres of the 70-acre tract, does not include area within effective subbasin "BRC_210", so its parameters remained unchanged. The approximate 59 acres of proposed development was broken out of the effective subbasins to become a new subbasin titled "SITE". Subbasins "SBR_110", "BCR_220", "BRC_230", and "BCR_240" were updated in area to remove area from the proposed development. The Revised Effective Condition Drainage Area Map in **Appendix B** portrays the subbasin revisions made for this analysis. Table 2 below tabulates the updates to the drainage areas.

Table 2: Revised Effective Drainage Areas

Subbasin	Effective (ac.)	Revised Effective (ac.)
SBR_110	139.4	127.3
BRC_220	275.3	274.9
BRC_230	77.9	32.4
BRC_240	9.5	8.3
SITE	N/A	59.2
Total	502.1	502.1

3.0 Hydrology

3.3.2 Curve Number

The Curve Number (CN) for each subbasin remained consistent with the effective CN values. Subbasin "SITE" used a CN value of 59, which correlates to the value for subbasin "BRC_230", which contains the majority of the site in effective conditions. The CN values for each subbasin are listed below in Table 3.

Table 3: Revised Effective Curve Number

Subbasin	Effective	Revised Effective
SBR_110	60	60
BRC_220	64	64
BRC_230	59	59
BRC_240	52	52
SITE	N/A	59

3.3.3 Impervious Cover

The impervious cover for subbasin "SITE" was determined using aerial imagery and engineering judgement. An Existing Site Impervious Cover Map with calculations is included in **Appendix B** denoting the areas of impervious cover in existing conditions. The impervious cover for subbasins "SBR_110", "BRC_220", "BRC_230", and "BRC_240" were updated to account for removal of portions within subbasin "SITE" that are not impervious. The impervious cover for each subbasin can be found in Table 4 below.

Table 4: Revised Effective Impervious Cover

Subbasin	Effective (%)	Revised Effective (%)
SBR_110	32.9	35.56
BRC_220	44.7	44.76
BRC_230	21.8	47.18
BRC_240	11.4	13.03
SITE	N/A	3.87

3.3.4 Lag Time

The time of concentrations for subbasins "BRC_230" and "SITE" were calculated using TR-55 methodology. The Longest Flow Path Map in Appendix B depicts the path used for calculations drawn based on topographic information discussed in Section 2. Complete calculations are shown in the Hydrologic Calculations section of **Appendix B**. The remaining subbasins maintain their effective lag time value since the area changes do not alter the longest flow path. The lag times are summarized in Table 5 below.

Table 5: Revised Effective Lag Time

Subbasin	Effective (min.)	Revised Effective (min.)
SBR_110	27.5	27.5
BRC_220	25.8	25.8
BRC_230	27.7	13.0
BRC_240	10.0	10.0
SITE	N/A	24.3

3.3.5 Reaches

Due to the revised effective drainage area updates discussed in Section 3.2.1, an additional reach was needed to convey the flow from subbasin “BRC_230” through subbasin “SITE”. Therefore, Kimley-Horn added a reach named “R_SITE” using the Lag Routing Method. A flow path was drawn using topography as discussed in Section 2 and is depicted on the Revised Effective Condition Drainage Area Map in **Appendix B**. The lag time was calculated assuming a velocity of 4 ft/sec, which correlates to the assumed velocity of Open Channel Flow from the time of concentration calculations.

3.4 PROPOSED CONDITION

3.4.1 Drainage Areas

A copy of the Revised Effective basin model discussed in Section 3.2 was made and titled “Proposed” to use for the proposed condition analysis. The drainage areas in proposed conditions are consistent with that of revised effective conditions. The areas can be seen in Table 2 above.

3.4.2 Curve Number

The CN values in proposed conditions are consistent with that of revised effective conditions. The CN values can be seen in Table 3 above.

3.4.3 Impervious Cover

The impervious cover values in proposed conditions, except for subbasin “SITE”, are consistent with that of revised effective conditions. The impervious values can be seen in Table 4 above. The impervious cover value for subbasin “SITE” was updated 30.32% to account for the proposed residential development. This value is a weighted average of the proposed development as 40% impervious and undeveloped areas as 0% impervious. Kimley-Horn assigned the 40% impervious value based on engineering judgement for proposed lots of approximately 10,000 square feet or 0.23 acres. The assigned impervious percentage generally correlates to TR-55 methodology, which assigns 0.25-acre lots as 38% impervious. A Proposed Site Impervious Cover Map is included in **Appendix B** detailing the 40% impervious areas, which aligns with the Proposed Site Plan included in **Appendix A**.

3.4.4 Lag Time

The lag times in proposed conditions, except for subbasin “SITE”, are consistent with that of revised effective conditions. The lag times can be seen in Table 5 above. To account for the proposed development, the following updates were made to the TR-55 time of concentration calculations for subbasin “SITE”:

- Sheet Flow Manning’s “n” value was lowered from 0.40 to 0.15 to represent the change in cover from “woods, light underbrush” to the residential development’s “short grass prairie”
- Shallow Concentrated Flow was changed from an “Unpaved” to a “Paved” condition
- Open Channel Flow velocity was increased from 4 ft/s to 6 ft/s to account for flow within confined, smooth stormwater infrastructure compared to the existing grass and tree-lined terrain
- Sheet Flow and Shallow Concentrated Flow lengths were decreased and Open Channel Flow length was increased

Complete calculations are included in the Hydrologic Calculations section of **Appendix B**.

3.4.5 Reaches

In proposed conditions, the same reach, “R_SITE”, was modeled using the Lag Routing Method. The velocity was increased to 6 ft/sec, which correlates to the assumed velocity of Open Channel Flow in the proposed time of concentration calculations for subbasin “SITE”.

3.0 Hydrology

3.5 RESULTS

The resulting peak flows from the effective, revised effective, and proposed condition analyses are tabulated below in Tables 6-8. HEC-HMS junctions included can be seen on the Drainage Area Map in **Appendix B**. Tables 6-8 include results up to junction “J_BRC_260”, which is approximately 9,000 feet downstream of the subject tract. Results of the analysis show that the proposed residential development without on-site detention will cause no rise in peak flow for the 10-, 25-, and 100-year storm events. An on-site water quality pond will serve the 2-year event. Therefore, the proposed development will cause no adverse impact to the Upper Brushy Creek watershed or downstream properties if developed without on-site detention. Digital Files for the hydrologic model are included in **Appendix C**.

Table 6: 10-Year Peak Flow Summary

HEC-HMS Junction	Effective (cfs)	Revised Effective (cfs)	Revised Effective – Effective (cfs)	Proposed (cfs)	Proposed – Revised Effective (cfs)
J_BRC_210	5,146	8,816	3,670	8,816	0
J_BRC_240B	5,158	8,844	3,686	8,844	0
J_BRC_230_210	5,170	8,863	3,693	8,863	0
J_BRC_240	5,167	8,863	3,696	8,863	0
J_SBR_110	1,840	3,115	1,275	3,115	0
J_BRC_240 & SBR_110	5,609*	9,486	3,877	9,485	-1
J_BRC_250	5,668	9,584	3,916	9,584	0
J_BRC_260	5,751	9,705	3,954	9,705	0

Table 7: 25-Year Peak Flow Summary

HEC-HMS Junction	Effective (cfs)	Revised Effective (cfs)	Revised Effective – Effective (cfs)	Proposed (cfs)	Proposed – Revised Effective (cfs)
J_BRC_210	7,668	14,080	6,412	14,080	0
J_BRC_240B	7,711	14,145	6,434	14,145	0
J_BRC_230_210	7,730	14,178	6,448	14,176	-2
J_BRC_240	7,721	14,179	6,458	14,177	-2
J_SBR_110	2,539	4,397	1,858	4,397	0
J_BRC_240 & SBR_110	8,348*	15,245	6,897	15,242	-3
J_BRC_250	8,422	15,420	6,998	15,418	-2
J_BRC_260	8,544	15,653	7,109	15,650	-3

Table 8: 100-Year Peak Flow Summary

HEC-HMS Junction	Effective (cfs)	Revised Effective (cfs)	Revised Effective – Effective (cfs)	Proposed (cfs)	Proposed – Revised Effective (cfs)
J_BRC_210	13,055	25,441	12,386	25,441	0
J_BRC_240B	13,137	25,603	12,466	25,603	0
J_BRC_230_210	13,170	25,683	12,513	25,667	-16
J_BRC_240	13,165	25,686	12,521	25,670	-16
J_SBR_110	3,914	6,686	2,772	6,686	0
J_BRC_240 & SBR_110	14,213*	27,942	13,729	27,925	-17
J_BRC_250	14,401	28,350	13,949	28,333	-17
J_BRC_260	14,633	28,920	14,287	28,903	-17

*Corresponds to effective FEMA FIS Report

3.0 Hydrology

Kimley»Horn

Appendix A General Information

Vicinity Map
Annotated FEMA FIRM Panels
Proposed Site Plan

Appendices

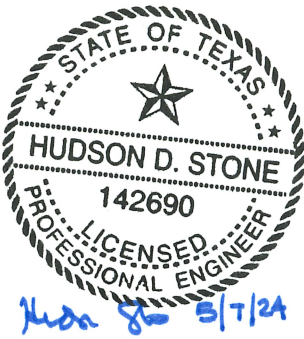


K:\WDL_Hydro\069285504 - Walsh Trails\Docs\Timing Study
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Kimley»Horn

1400 Woodloch Forest Drive, Suite 225
The Woodlands, TX 77380
Phone: (281) 475-2816
TBPE FIRM No. 928



WALSH TRAILS
CITY OF CEDAR PARK, TX

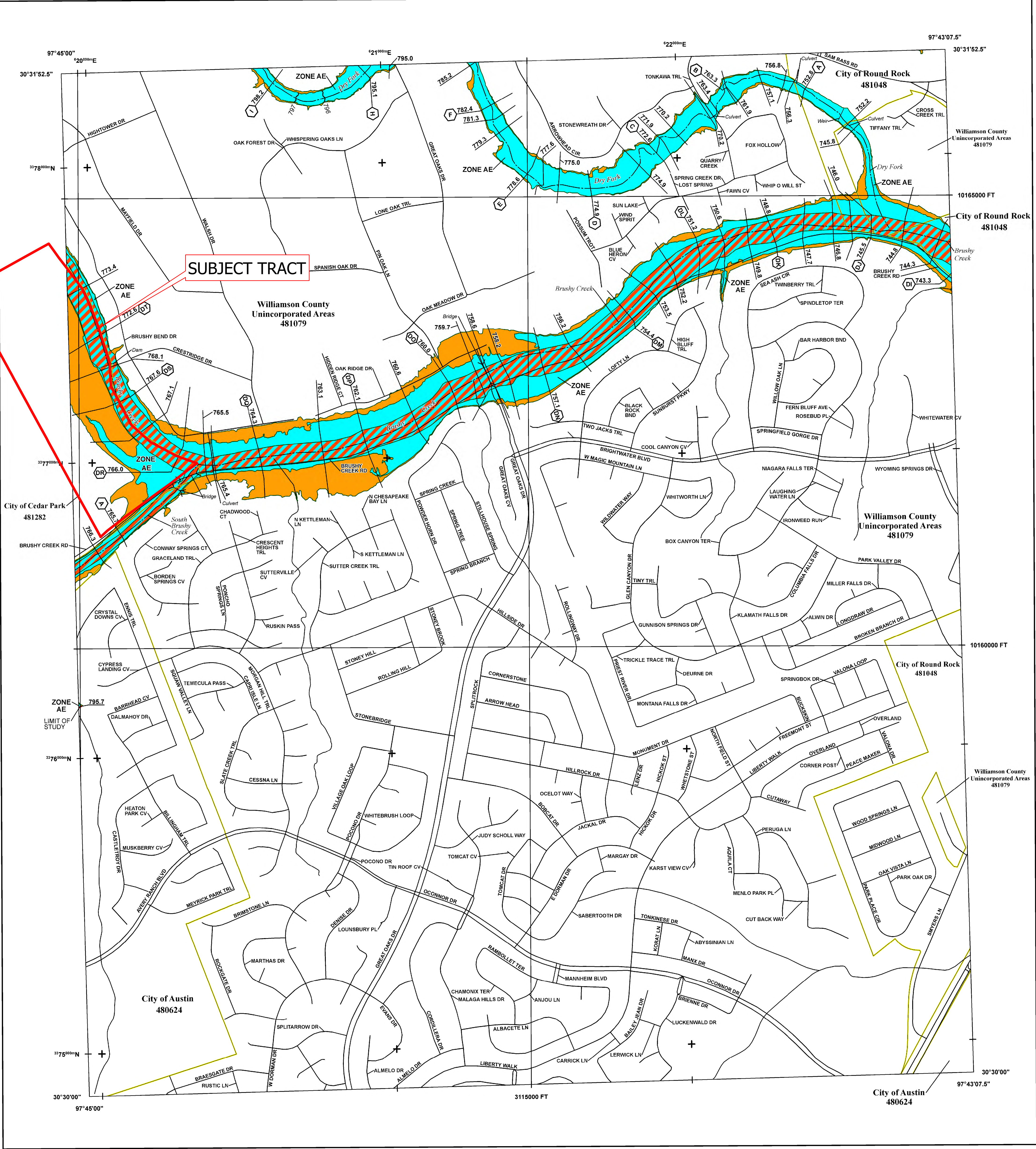
VICINITY MAP

PROJ NO.:	069285504
DATE:	MARCH 2024
DESIGN:	SPH
DRAWN:	SPH
CHECKED:	HDS



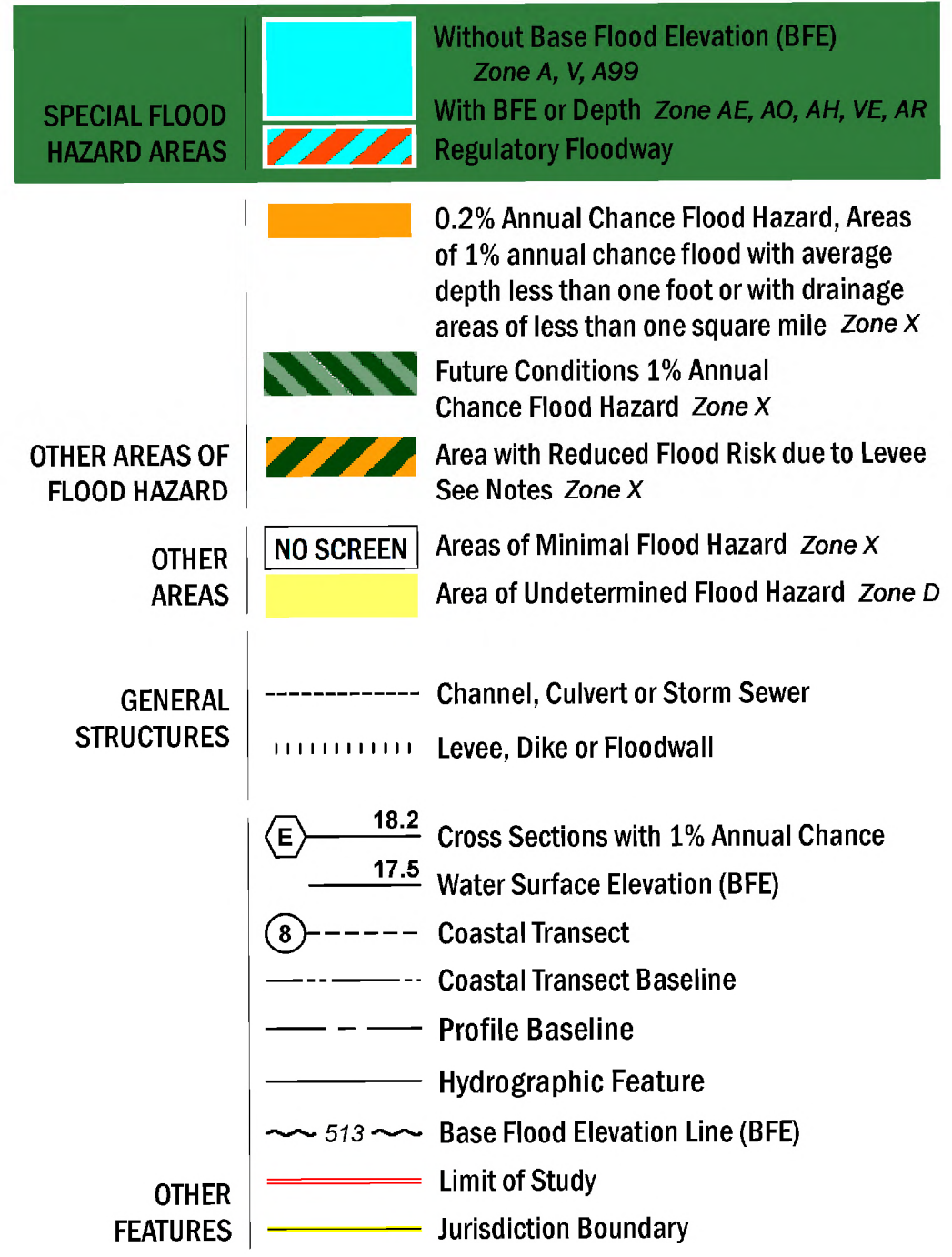
1 inch = 1,500 feet

SHEET
1



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING
DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT
[HTTPS://MSC.FEMA.GOV](https://MSC.FEMA.GOV)



NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at <https://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

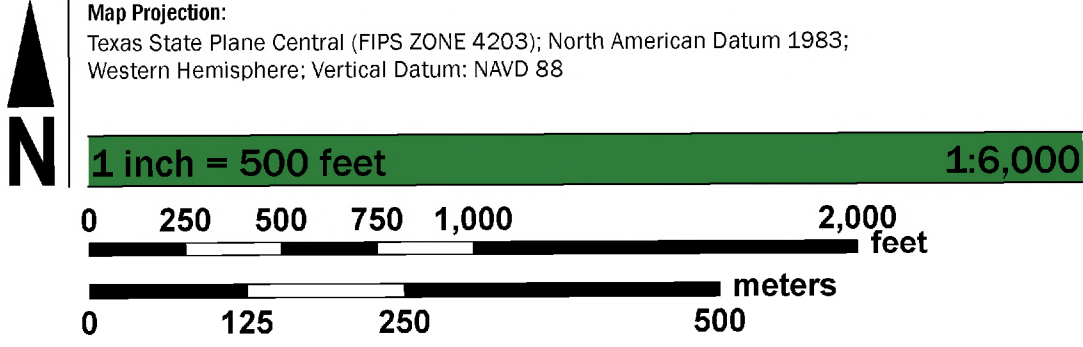
Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study Report for this jurisdiction.

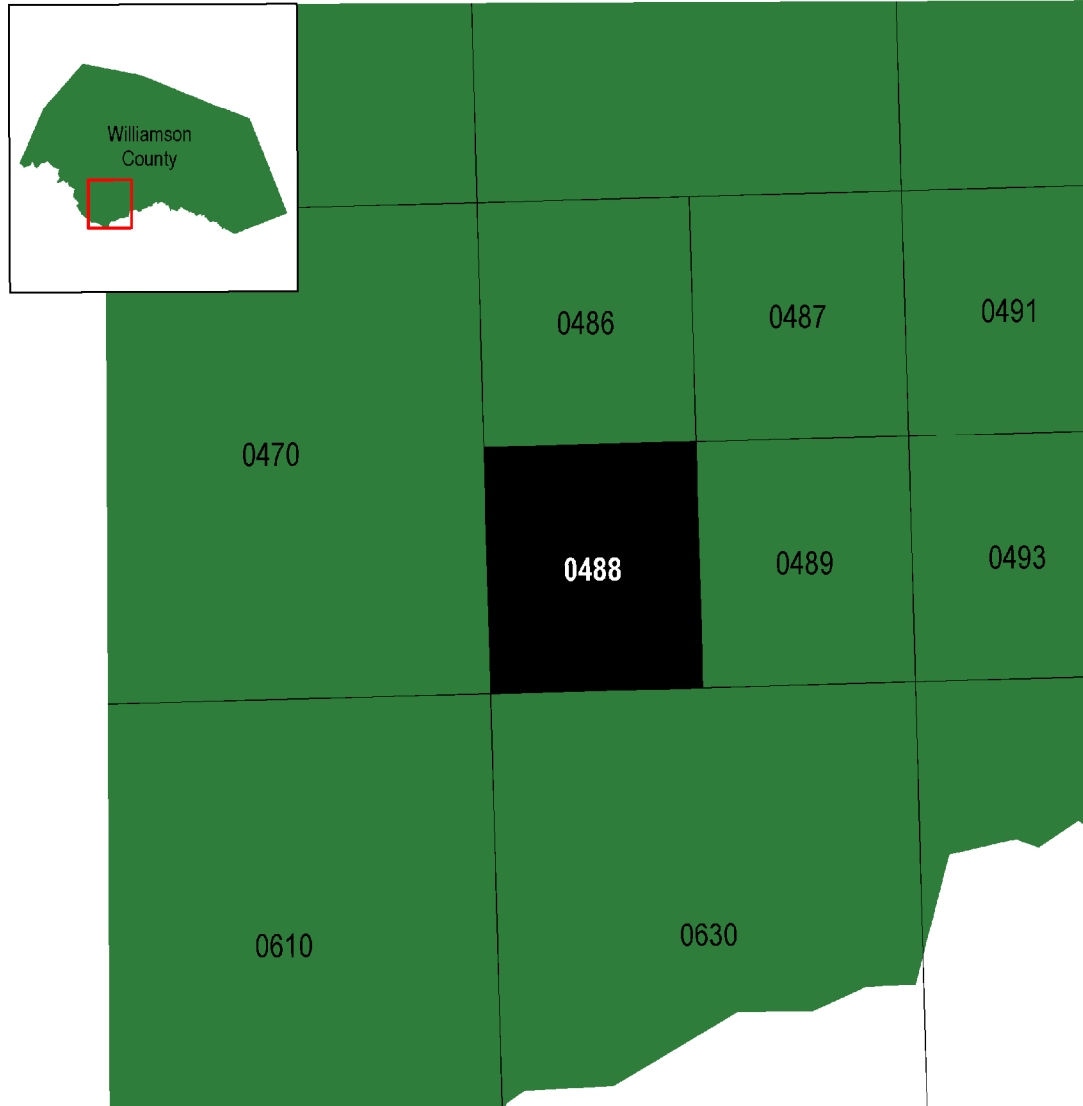
To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on this FIRM was derived from digital data obtained from Texas Natural Resource Information Systems (TNRIS), dated 2000; United States Census Bureau, dated 2015; United States Geological Survey, dated 2005; and the Williamson County Geographic Information Systems (GIS) Department, dated 2014 and 2017.

SCALE



PANEL LOCATOR



National Flood Insurance Program

**NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP**

**WILLIAMSON COUNTY,
TEXAS**

and Incorporated Areas

PANEL 488 OF 750

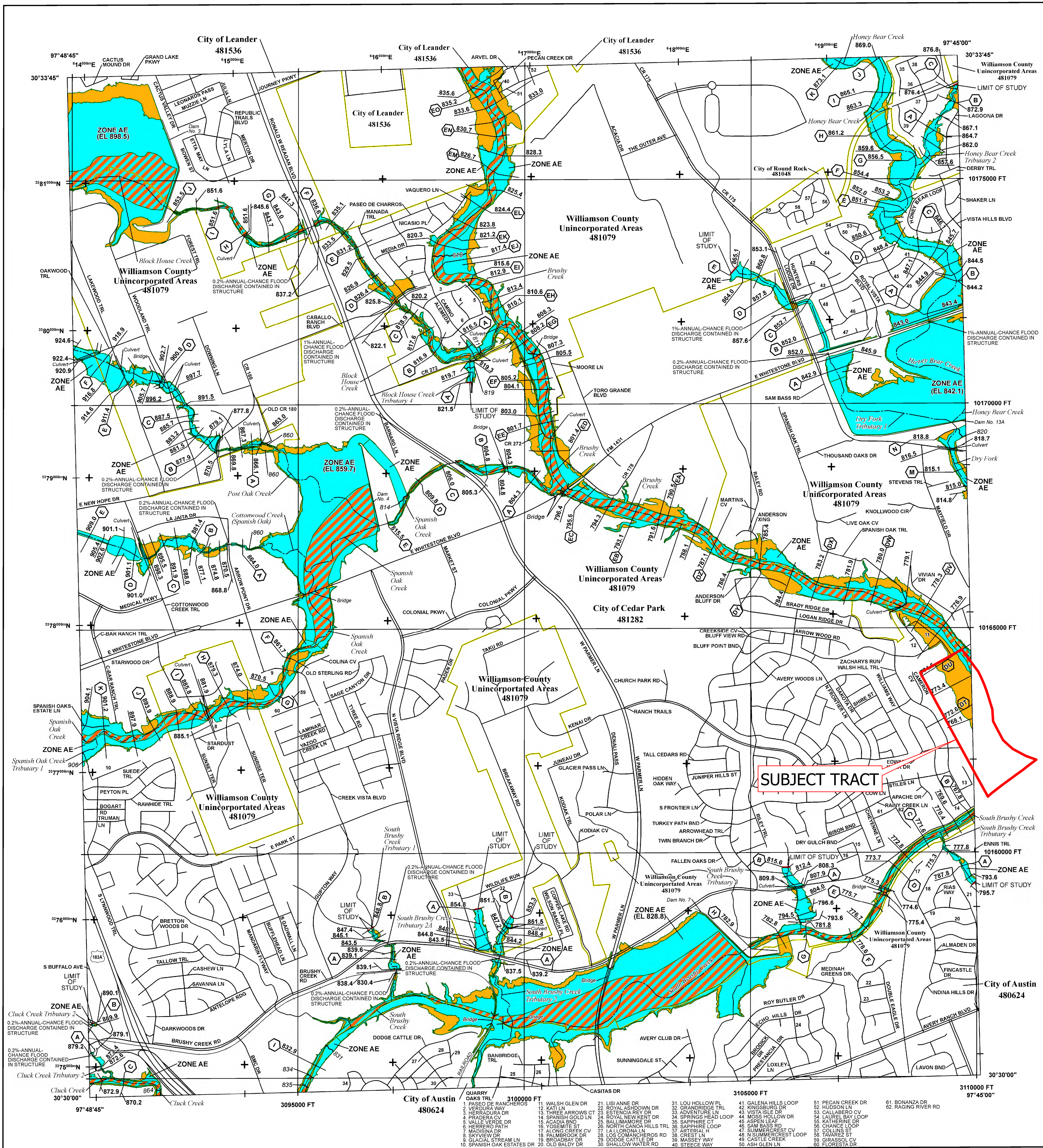
COMMUNITY	NUMBER	PANEL	SUFFIX
AUSTIN, CITY OF	480624	0488	F
CEDAR PARK, CITY OF	481282	0488	F
ROUND ROCK, CITY OF	481048	0488	F
WILLIAMSON COUNTY	481079	0488	F

Panel Contains:

VERSION NUMBER
2.3.3.3

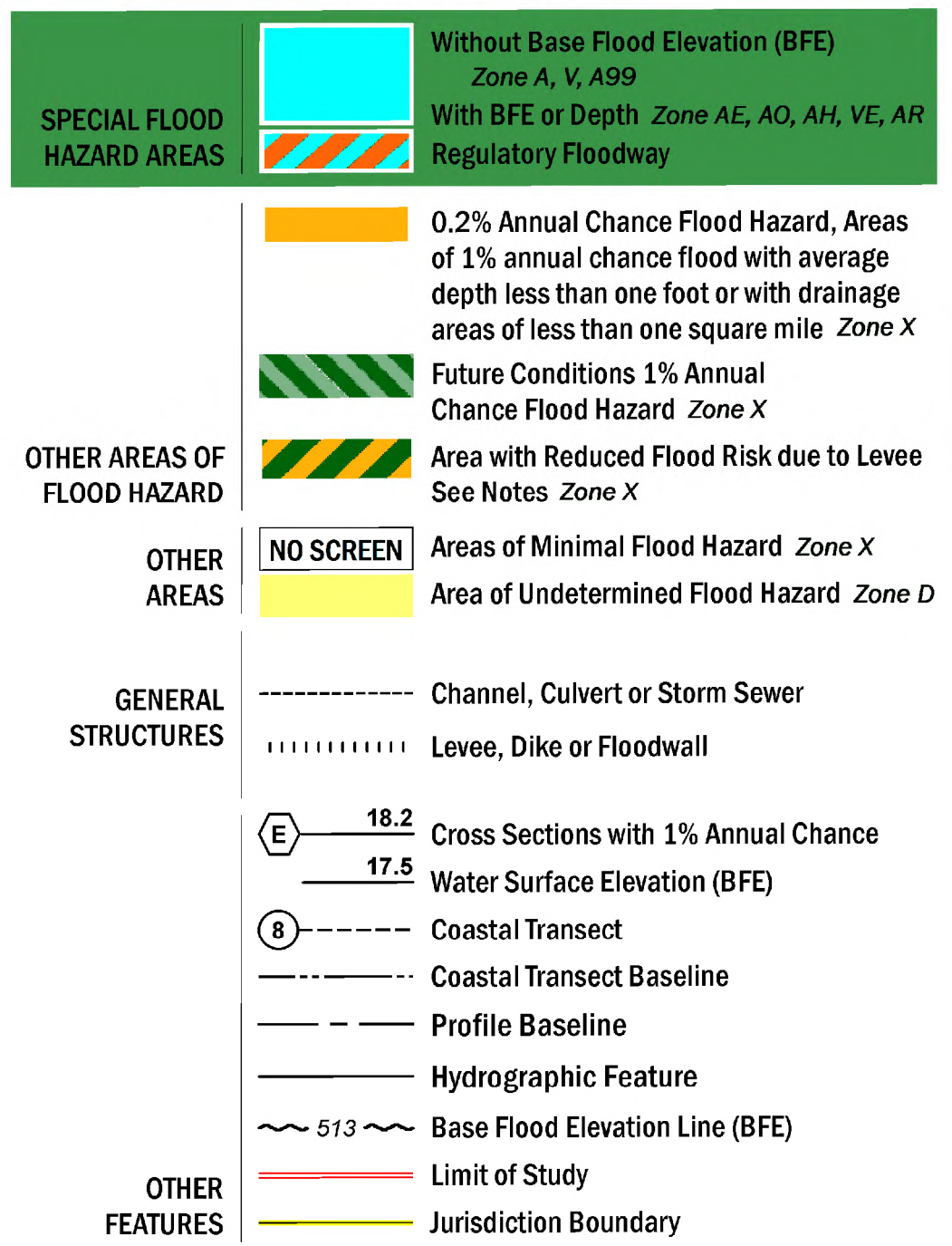
MAP NUMBER
48491C0488F

MAP REVISED
DECEMBER 20, 2019



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT [HTTPS://MSC.FEMA.GOV](https://msc.fema.gov)



NOTES TO USERS

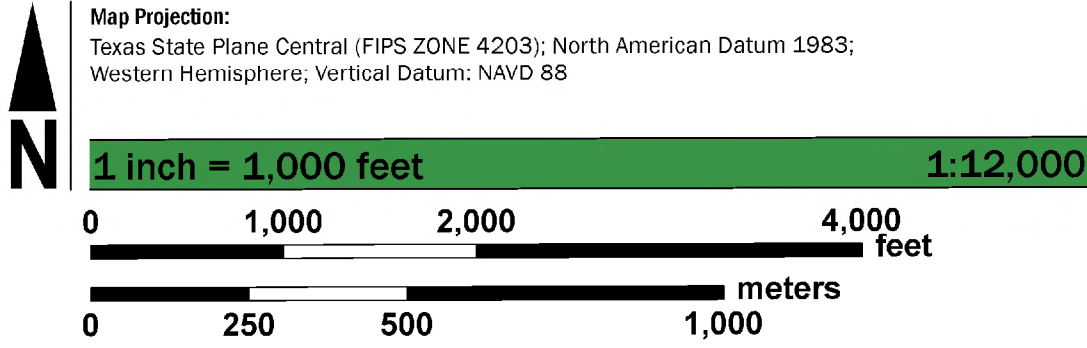
For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at <https://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

For community and countywide map dates refer to the Flood Insurance Study Report for this jurisdiction.

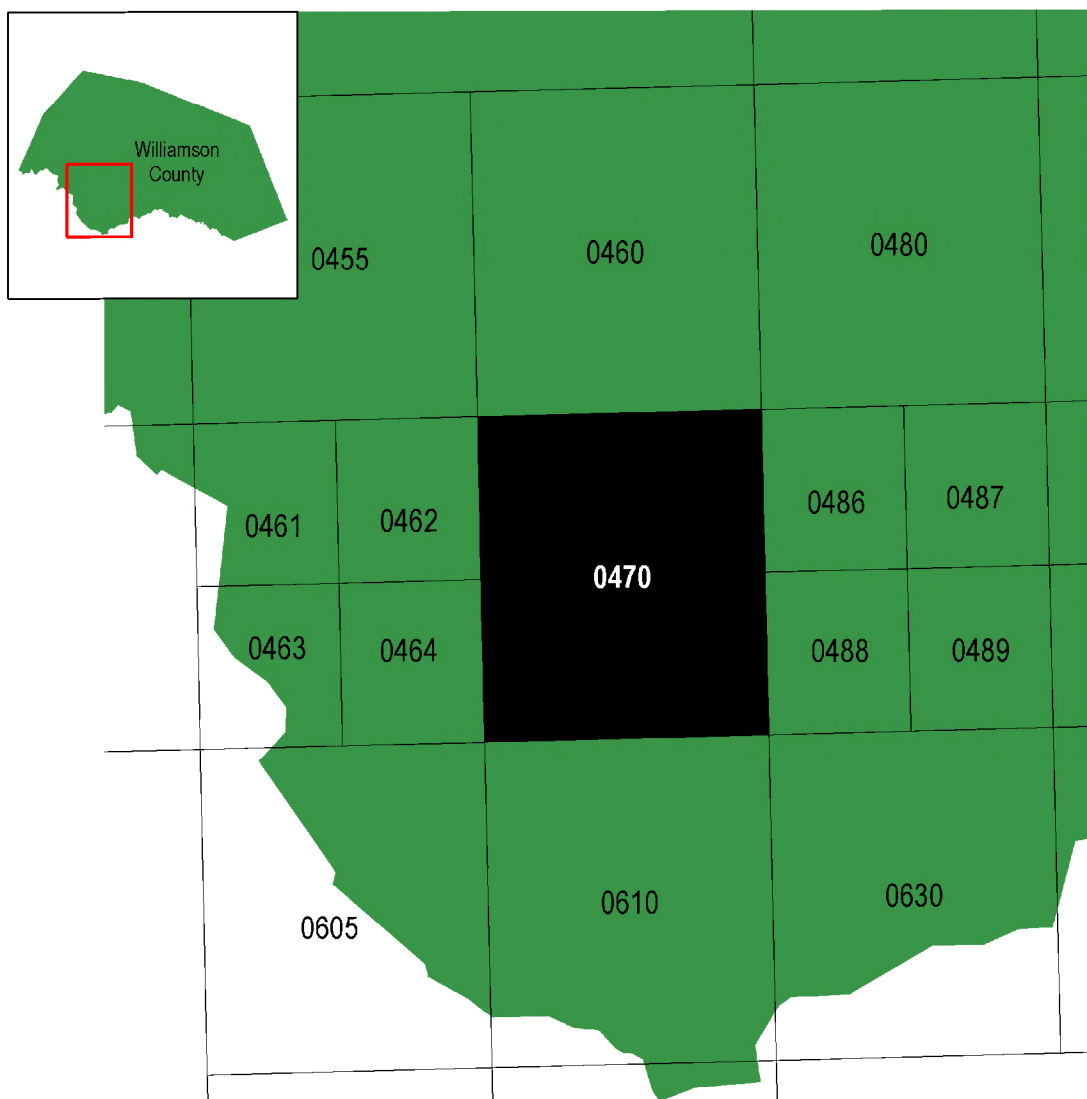
To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on this FIRM was derived from digital data obtained from Texas Natural Resource Information Systems (TNRIS), dated 2000; United States Census Bureau, dated 2015; United States Geological Survey, dated 2005; and the Williamson County Geographic Information Systems (GIS) Department, dated 2014 and 2017.

SCALE



PANEL LOCATOR



NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAP

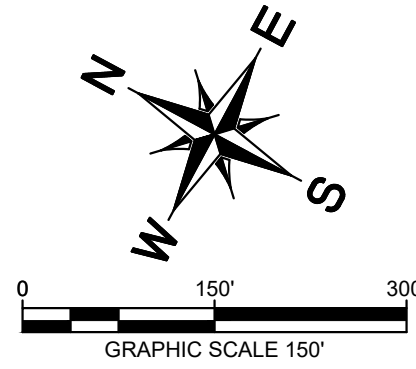
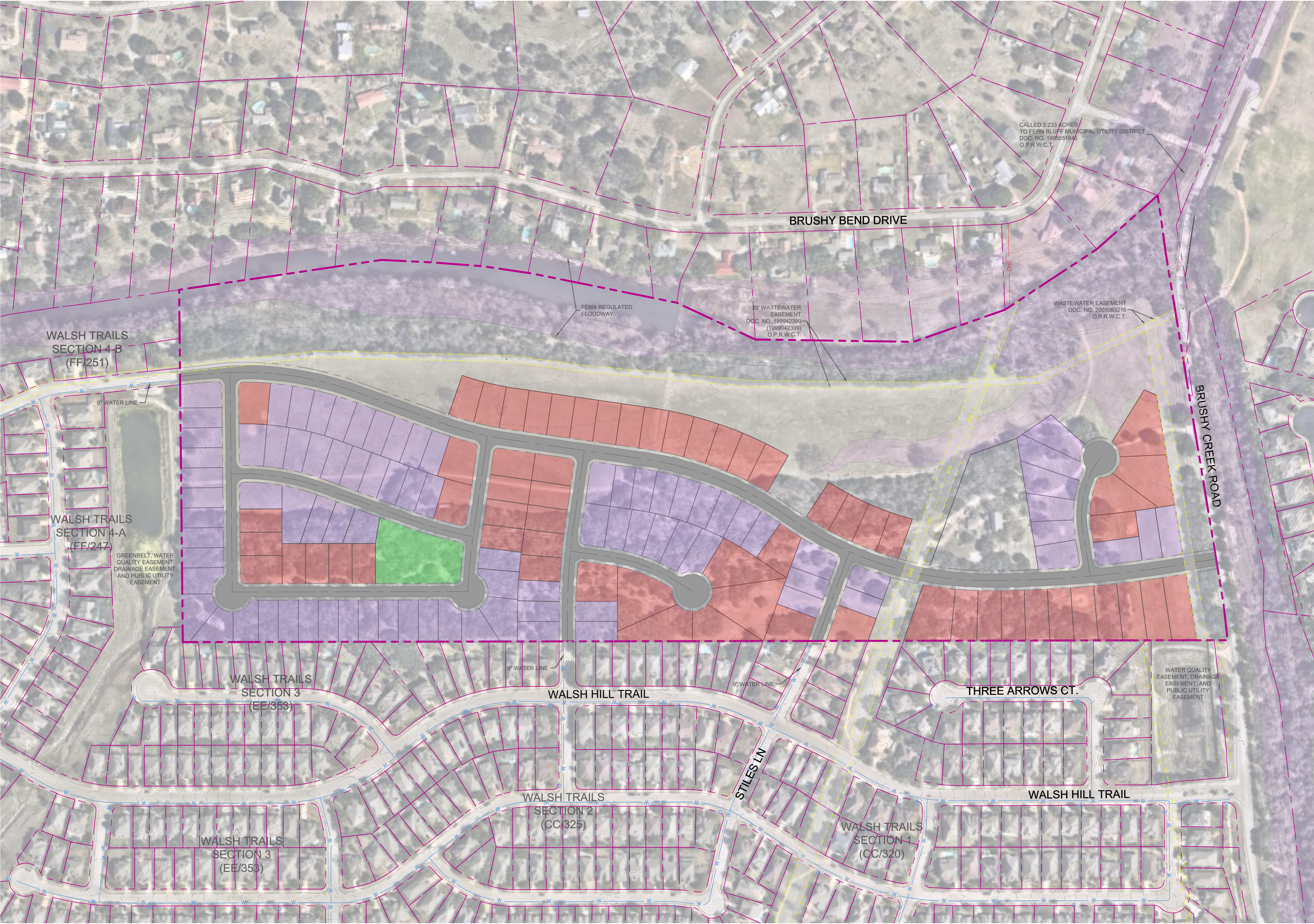
WILLIAMSON COUNTY,
TEXAS
and Incorporated Areas
PANEL 470 of 750

Panel Contains:	COMMUNITY	NUMBER	PANEL	SUFFIX
	AUSTIN, CITY OF	480624	0470	F
	CEDAR PARK, CITY OF	481282	0470	F
	LEANDER, CITY OF	481536	0470	F
	ROUND ROCK, CITY OF	481048	0470	F
	WILLIAMSON COUNTY	481079	0470	F

VERSION NUMBER
2.3.3.3

MAP NUMBER
48491C0470F

MAP REVISED
DECEMBER 20, 2019



LEGEND

- PROPERTY LINE
- EXISTING WASTEWATER LINE
- EXISTING WATER LINE
- EXISTING WASTEWATER MANHOLE
- EXISTING STORM DRAIN LINE
- EXISTING FIRE HYDRANT
- EXISTING STORM DRAIN INLET
- EXISTING OVERHEAD POWERLINE
- EXISTING POWER POLE
- FEMA 100-YEAR FLOODPLAIN

OVERALL LOT COUNT		
LOT TYPE	COUNT	COLOR
60'	85	
70'	61	

WALSH BRUSHY CREEK

LAND PLAN EXHIBIT

Cedar Park, Texas
September 23

Kimley»Horn
5301 SOUTHWEST PARKWAY
BUILDING 2, SUITE 100
AUSTIN, TEXAS 78746
512-646-2237
State of Texas Registration No. F-928

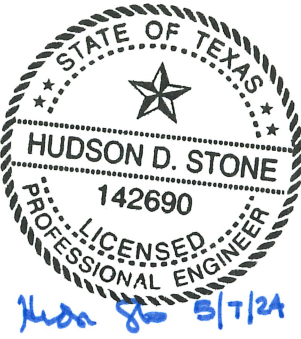
Appendix B Hydrology

Effective Condition Drainage Area Map
Revised Effective Condition Drainage Area Map
Existing Site Impervious Cover Map
Proposed Site Impervious Cover Map
Longest Flow Path Map
Atlas 14 Rainfall
Hydrologic Calculations
HEC-HMS Output

FEMA FIRM PANELS:
48491C0488F - 12/20/2019
48491C0470F - 12/20/2019


Kimley»Horn

1400 Woodloch Forest Drive, Suite 225
The Woodlands, TX 77380
Phone: (281) 475-2816
TBPE FIRM No. 928

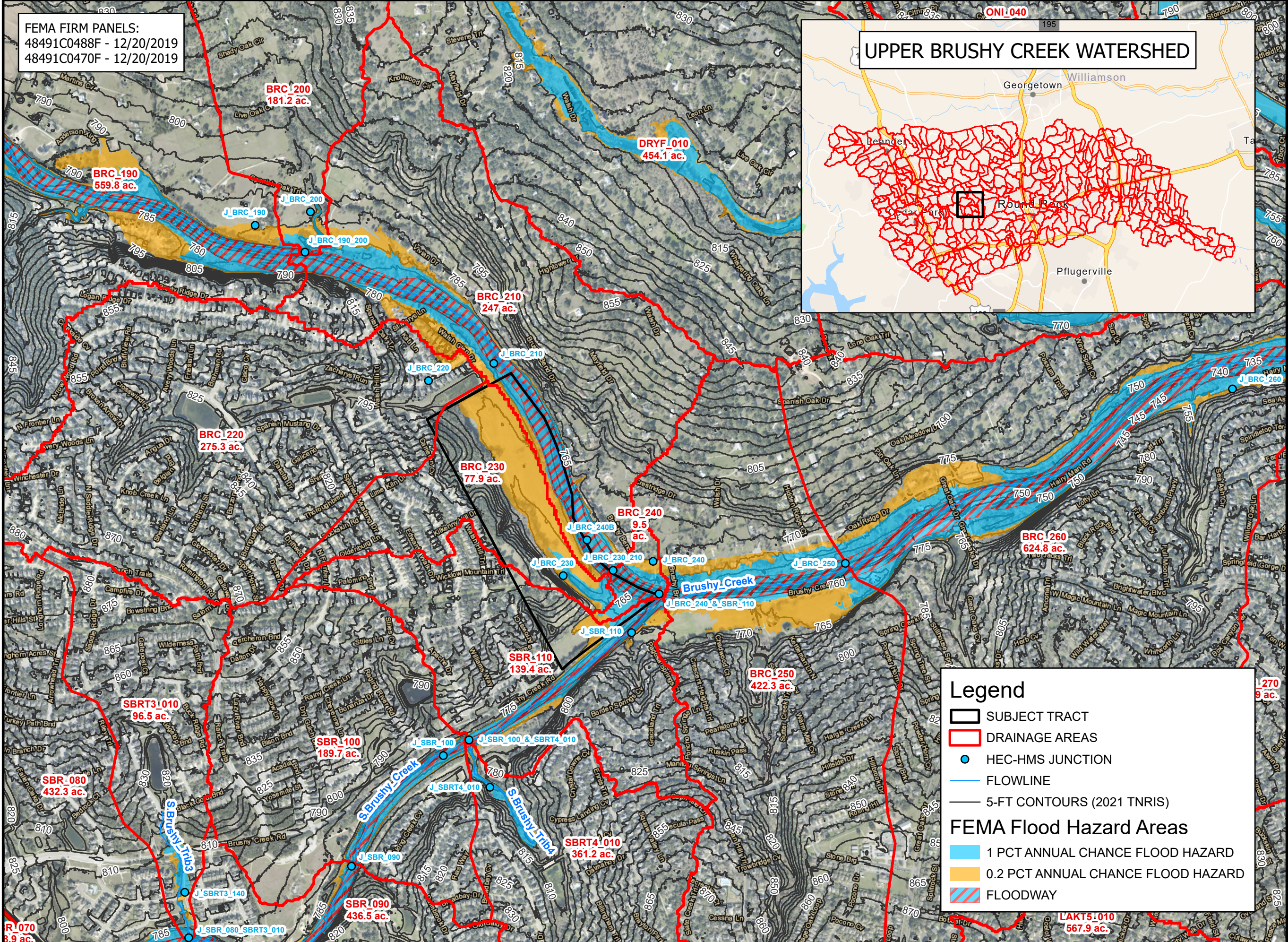
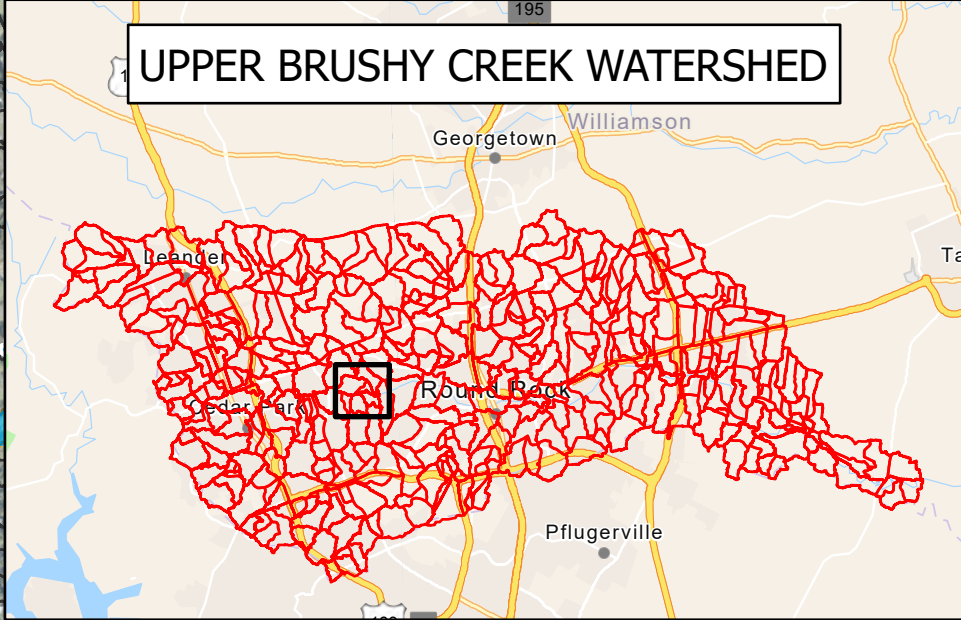


WALSH TRAILS
CITY OF CEDAR PARK, TX

EFFECTIVE CONDITION
DRAINAGE AREA MAP

PROJ NO.:	069285504
DATE:	MARCH 2024
DESIGN:	SPH
DRAWN:	SPH
CHECKED:	HDS
 1 inch = 1,000 feet	
SHEET 2	

UPPER BRUSHY CREEK WATERSHED



Legend

- SUBJECT TRACT
- DRAINAGE AREAS
- HEC-HMS JUNCTION
- FLOWLINE
- 5-FT CONTOURS (2021 TNRS)

FEMA Flood Hazard Areas

- 1 PCT ANNUAL CHANCE FLOOD HAZARD
- 0.2 PCT ANNUAL CHANCE FLOOD HAZARD
- FLOODWAY

FEMA FIRM PANELS:
48491C0488F - 12/20/2019
48491C0470F - 12/20/2019

UPPER BRUSHY CREEK WATERSHED

Legend

- SUBJECT TRACT
- REVISED DRAINAGE AREAS
- EFFECTIVE DRAINAGE AREAS
- HEC-HMS JUNCTION
- HEC-HMS REACH
- FLOWLINE
- 5-FT CONTOURS (2021 TNRS)

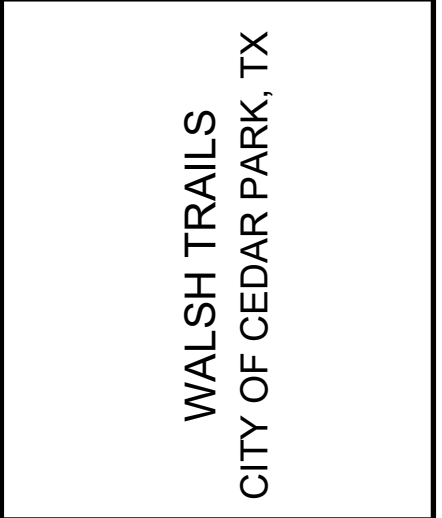
FEMA Flood Hazard Areas

- 1 PCT ANNUAL CHANCE FLOOD HAZARD
- 0.2 PCT ANNUAL CHANCE FLOOD HAZARD
- FLOODWAY

Map Labels:


- BRC_190 559.8 ac.
- BRC_200 181.2 ac.
- J_BRC_190
- J_BRC_200
- J_BRC_190_200
- DRYF_010 454.1 ac.
- BRC_210 247 ac.
- J_BRC_210
- J_BRC_220
- BRC_220 274.9 ac.
- BRC_230 32.4 ac.
- SITE 59.2 ac.
- J_BRC_230
- J_BRC_240B
- BRC_240 8.3 ac.
- J_BRC_240
- J_BRC_240 & SBR_110
- J_SBR_110
- SBR_110 127.3 ac.
- BRC_250 422.3 ac.
- J_BRC_250
- BRC_260 624.8 ac.
- BRC_270 551.9 ac.
- SBRT3_010 96.5 ac.
- SBR_080 432.3 ac.
- J_SBR_080
- J_SBR_080 SBRT3_010
- J_SBR_090
- SBR_090 436.5 ac.
- SBRT4_010 361.2 ac.
- J_SBRT4_010
- J_SBR_100
- J_SBR_100 & SBRT4_010
- J_SBRT4_010
- SBRT3_140
- LAKT5_020

Kimley»Horn
1400 Woodloch Forest Drive, Suite 225
The Woodlands, TX 77380
Phone: (281) 475-2816
TBPE FIRM No. 928



REVISED EFFECTIVE
CONDITION

DRAINAGE AREA MAP

PROJ NO.:	069285504
DATE:	MAY 2024
DESIGN:	SPH
DRAWN:	SPH
CHECKED:	HDS
 1 inch = 1,000 feet	SHEET 3

DATE: MAY 2024

DRAWN:	SPH
--------	-----

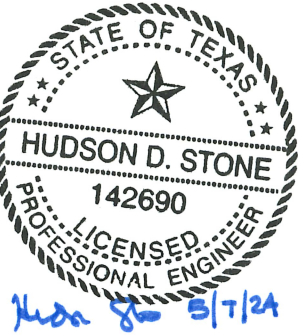
N	SHEET
---	-------

3

1 inch = 1,000 feet

SITE Impervious Cover Calculations		
Impervious (ac.)	Total (ac.)	Impervious (%)
2.29	59.15	3.87%

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Phone: (281) 475-2816
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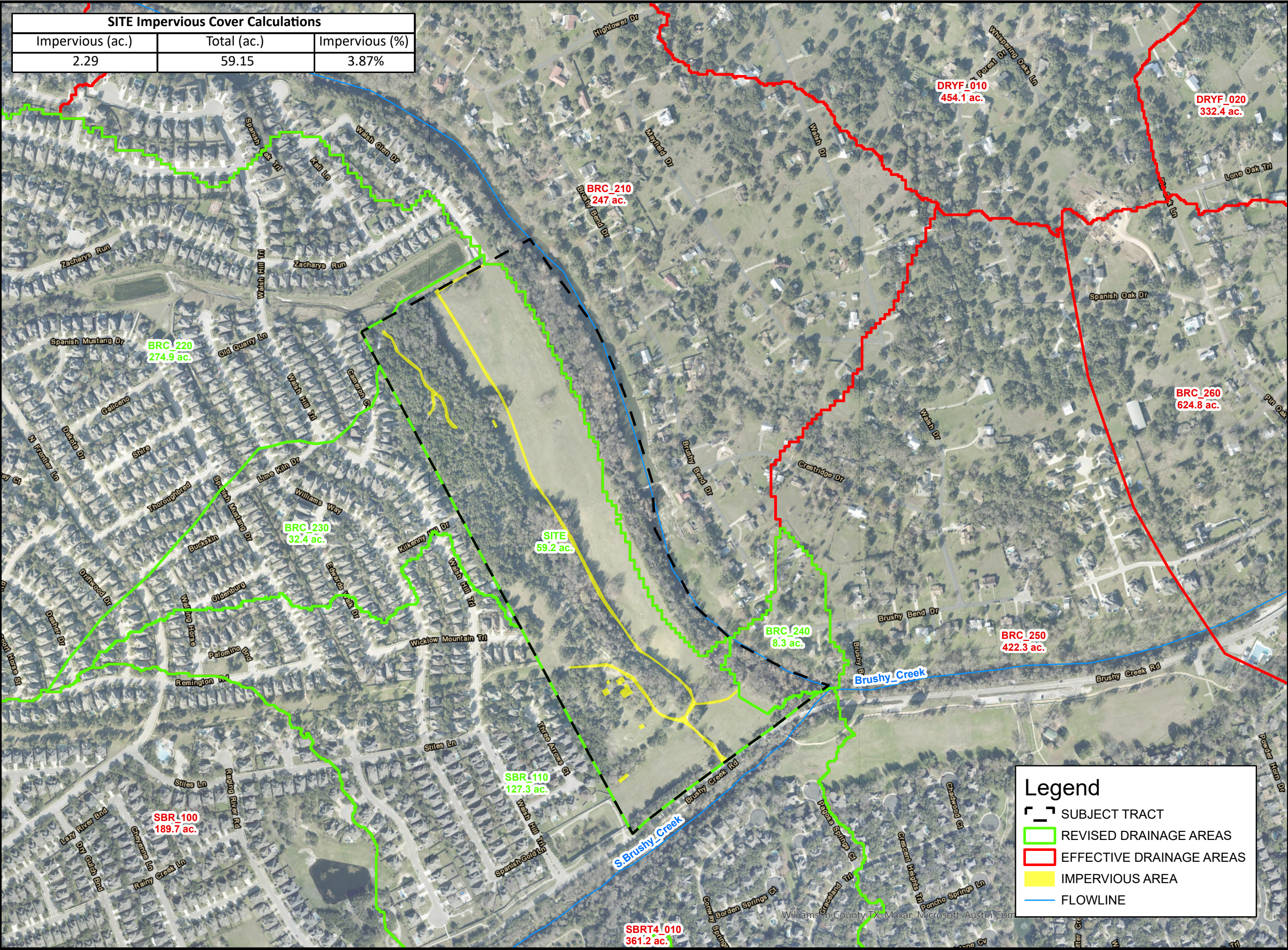
WALSH TRAILS
CITY OF CEDAR PARK, TX

EXISTING SITE
IMPERVIOUS COVER MAP

PROJ NO.:	069285504
DATE:	MARCH 2024
DESIGN:	SPH
DRAWN:	SPH
CHECKED:	HDS



SHEET
4



Legend

SUBJECT TRACT

REVISED DRAINAGE AREAS

EFFECTIVE DRAINAGE AREAS

IMPERVIOUS AREA

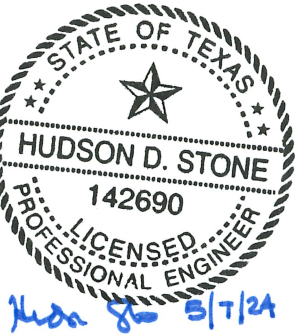
FLOWLINE

Williamson County TX, Maxar, Microsoft, Austin Com

K:\WDL_GIS\069285504 - Walsh Trails\Walsh Trails ArcGIS Pro\Walsh Trails ArcGIS Pro.aprx

SITE Impervious Cover Calculations		
40% Impervious (ac.)	Total (ac.)	Impervious (%)
44.84	59.15	30.32%

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1400 Woodloch Forest Drive, Suite 225
The Woodlands, TX 77380
Phone: (281) 475-2816
TBPE FIRM No. 928



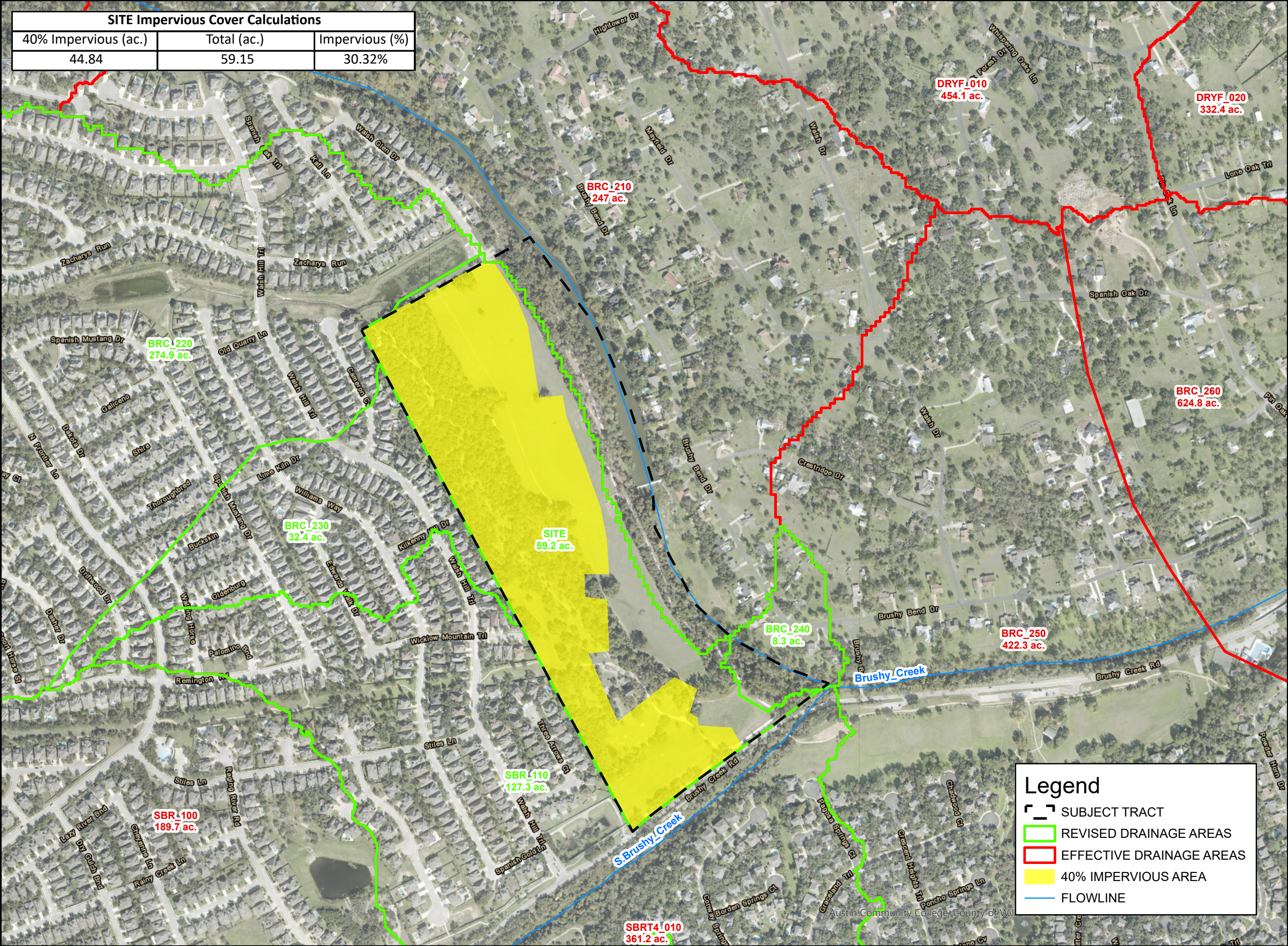
WALSH TRAILS
CITY OF CEDAR PARK, TX

PROPOSED SITE
IMPERVIOUS COVER MAP

PROJ NO.:	069285504
DATE:	APRIL 2024
DESIGN:	SPH
DRAWN:	SPH
CHECKED:	HDS



SHEET
5



Legend

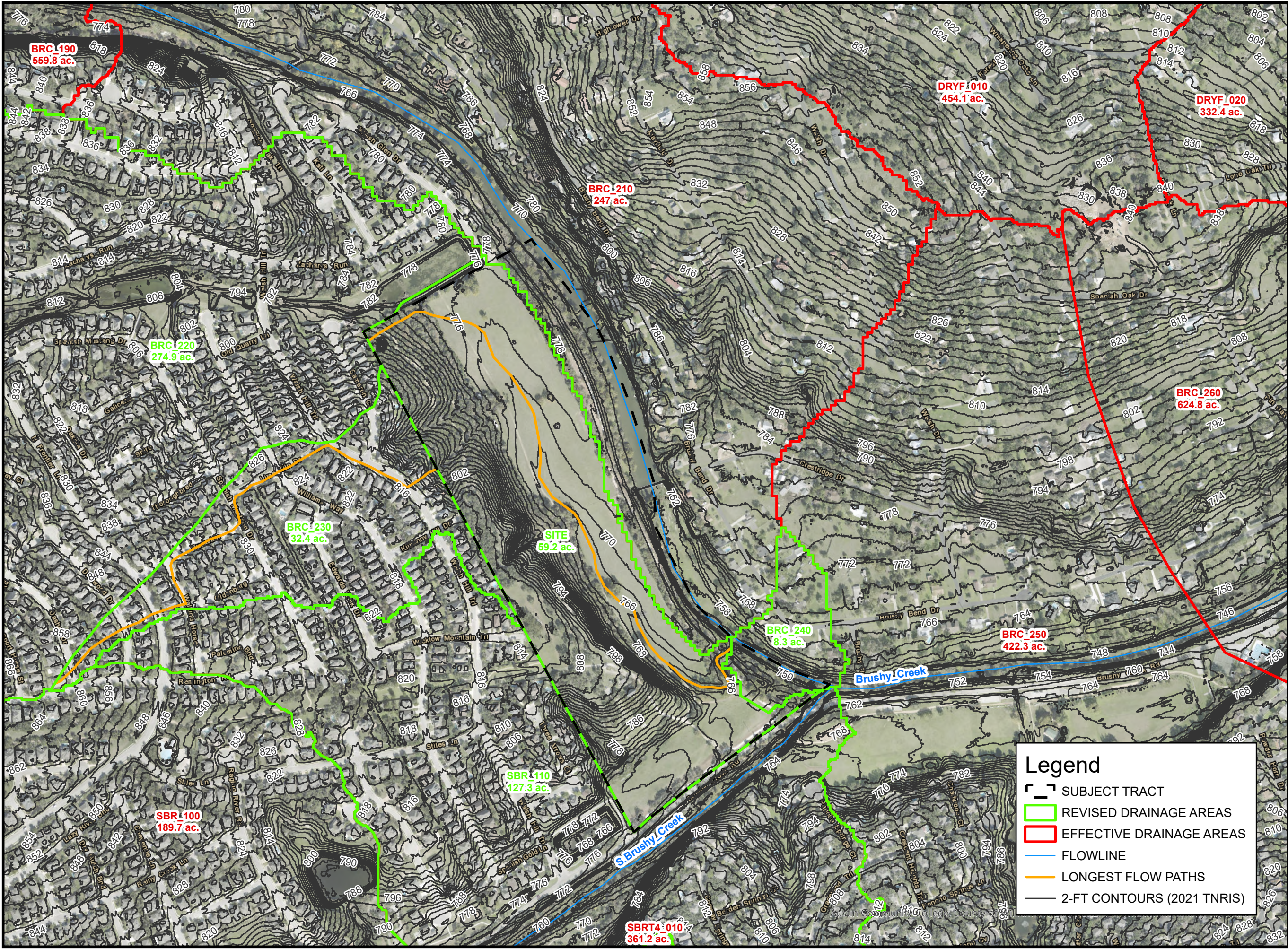
SUBJECT TRACT

REVISED DRAINAGE AREAS

EFFECTIVE DRAINAGE AREAS

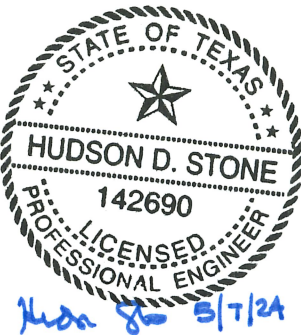
40% IMPERVIOUS AREA

FLOWLINE



Kimley»Horn

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The Woodlands, TX 77380
Phone: (281) 475-2816
TBPE FIRM No. 928



WALSH TRAILS
CITY OF CEDAR PARK, TX

REVISED EXISTING
LONGEST FLOW PATH MAP

Legend

- SUBJECT TRACT
- REVISED DRAINAGE AREAS
- EFFECTIVE DRAINAGE AREAS
- FLOWLINE
- LONGEST FLOW PATHS
- 2-FT CONTOURS (2021 TNRS)

PROJ NO.:	069285504
DATE:	APRIL 2024
DESIGN:	SPH
DRAWN:	SPH
CHECKED:	HDS



SHEET
6

Rainfall Depths

NOAA has provided Atlas 14 precipitation frequency estimates for the state of Texas on their website (<https://hdsc.nws.noaa.gov/hdsc/pfds/>). This includes a series of rasters that document precipitation-frequency estimates in inches for a range of storm durations and average recurrence intervals. For this analysis, FNI used the partial-duration rasters covering storm durations between 5 minutes and 24 hours and for average recurrence intervals from 1 to 500 years. Figure 1 shows Cedar Park's city limits and ETJ along with contours representing the Atlas 14 100-year 24-hour depth. The 100-year 24-hour depth generally ranges from 11.6 inches at the north edge to 12.0 inches at the south.

FNI used ArcMap's Zonal Statistics tool to average the NWS partial-duration precipitation frequency rasters across the entirety of the City of Cedar Park's city limits and ETJ. The tool provides a minimum, maximum, range, mean, and standard deviation of each precipitation-frequency estimate raster across Cedar Park's city limits and ETJ. The tool only considers raster cells whose centers lie within the city limits and ETJ. In order to improve resolution around the perimeter, FNI first resampled each raster from a cell size of approximately 0.5 mi to a cell size of approximately 0.05 mi.

The mean value for each precipitation-frequency estimate (e.g., the 100-year 24-hour storm) represents the mean rainfall depth within Cedar Park's city limits and ETJ. The range and standard deviation values show the level of variation and indicates how closely the mean value represents the actual values within the city limits and ETJ.

The recommended rainfall depths are shown in Table 1 below. Table 2 provides the range and standard deviation of depths for select durations and recurrence intervals. The Table 2 results indicate that the mean values selected generally match the underlying Atlas 14 values across the city within $\pm 2\%$. This holds true across a range of durations and recurrence intervals.

Table 1. Recommended Atlas 14 Rainfall Depths

Duration	Rainfall Depth (in.) by Average Recurrence Interval								
	1-yr	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	200-yr	500-yr
5 min	0.42	0.51	0.65	0.77	0.95	1.10	1.26	1.43	1.66
10 min	0.68	0.82	1.04	1.23	1.52	1.76	2.02	2.28	2.63
15 min	0.85	1.03	1.30	1.54	1.89	2.19	2.51	2.84	3.29
30 min	1.21	1.45	1.82	2.15	2.64	3.04	3.48	3.95	4.61
60 min	1.56	1.90	2.39	2.84	3.50	4.05	4.65	5.32	6.28
2 hr	1.86	2.32	2.99	3.62	4.57	5.38	6.30	7.34	8.88
3 hr	2.01	2.57	3.35	4.11	5.26	6.27	7.42	8.74	10.71
6 hr	2.31	3.01	3.98	4.93	6.39	7.67	9.17	10.90	13.51
12 hr	2.67	3.47	4.58	5.68	7.36	8.83	10.55	12.55	15.59
24 hr	3.07	3.96	5.23	6.44	8.30	9.90	11.76	13.95	17.30

TIME OF CONCENTRATION & LAG TIME REVISED EFFECTIVE CONDITIONS TR-55 Methodology																		
Basin	SHEET FLOW						SHALLOW CONCENTRATED FLOW							OPEN CHANNEL FLOW			TOTAL	
	Tc = (0.42(nL)^0.8)/(P2^0.5)(s^0.4) 2-year/24-hr Rainfall Depth (in.) = 3.96						Tc = L / 60*V							Tc = L / 60*V				
	Length (ft)	Elev ₁	Elev ₂	Slope (ft/ft)	Manning's "n"	T _{c1} (min)	Length (ft)	Elev ₂	Elev ₃	Slope (ft/ft)	Condition TR-55 Fig. 3-1	V _{avg} (ft/s)	T _{c2} (min)	Length (ft)	V _{avg} (ft/s)	T _{c3} (min)	T _{cTOTAL} * (min)	T _{lag} 0.6*T _c (min)
SITE	100	792.9	788.4	0.0450	0.400	14.0	2004	788.4	768.1	0.0101	Unpaved	1.62	20.6	1422	4.00	5.93	40.4	24.3
BRC_230	100	863.5	860.5	0.0300	0.150	7.5	765	860.5	843.5	0.0222	Unpaved	2.41	5.3	2115	4.00	8.81	21.6	13.0

TIME OF CONCENTRATION & LAG TIME PROPOSED CONDITIONS TR-55 Methodology																		
	SHEET FLOW						SHALLOW CONCENTRATED FLOW							OPEN CHANNEL FLOW			TOTAL	
	Tc = (0.42(nL)^0.8)/(P2^0.5)(s^0.4) 2-year/24-hr Rainfall Depth (in.) = 3.96						Tc = L / 60*V							Tc = L / 60*V				
Basin	Length (ft)	Elev ₁	Elev ₂	Slope (ft/ft)	Manning's "n"	T _{c1} (min)	Length (ft)	Elev ₂	Elev ₃	Slope (ft/ft)	Condition TR-55 Fig. 3-1	V _{avg} (ft/s)	T _{c2} (min)	Length (ft)	V _{avg} (ft/s)	T _{c3} (min)	T _{cTOTAL} * (min)	T _{lag} 0.6*T _c (min)
SITE	50	792.9	790.7	0.0450	0.150	3.7	200	790.7	788.6	0.0101	Paved	2.04	1.6	3276	6.00	9.10	14.4	8.6

Effective FEMA FIS Report

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Future	0.2% Annual Chance
Brushy Creek ¹	At County Route 129	184.33	24,342	*	35,703	42,426	*	61,247
Brushy Creek	At County Road 137	168.53	19,819	28,232	36,948	47,039	54,492	77,078
Brushy Creek	At confluence of Brushy Creek Tributary 9	166.69	19,839	28,112	36,870	46,891	54,278	76,639
Brushy Creek	At confluence of Brushy Creek Tributary 7	163.56	19,472	27,685	36,256	46,091	53,371	75,604
Brushy Creek	At confluence of Dam 18 Tributary	160.42	18,623	26,407	34,584	43,975	51,142	72,407
Brushy Creek	At confluence of Brushy Creek Tributary 5	155.11	18,162	25,713	33,728	42,871	50,034	70,500
Brushy Creek	At confluence of McNutt Creek	152.55	17,954	25,417	33,344	42,363	49,528	69,750
Brushy Creek	At confluence of Chandler Branch	138.82	16,151	22,825	29,958	37,874	44,373	62,200
Brushy Creek	At confluence of Dry Branch	112.61	12,481	17,557	23,429	29,854	35,992	50,730
Brushy Creek	At confluence of Lake Creek	106.62	10,210	15,130	20,276	25,942	32,908	46,128
Brushy Creek	At confluence of Onion Branch	77.42	7,861	11,625	15,401	19,682	23,506	31,843
Brushy Creek	At confluence of Dry Fork	68.19	5,995	8,877	11,990	15,202	18,397	25,011
Brushy Creek	At confluence of South Brushy	61.35	5,609	8,348	11,218	14,213	17,115	23,341
Brushy Creek	At confluence of Spanish Oak Creek	39.61	4,922	7,338	9,851	12,451	14,875	20,331

Project: UBC-HOME

Simulation Run: A14-010YR-REV

Start of Run: 01Jan2000, 00:00

Basin Model: Revised Effective

End of Run: 04Jan2000, 00:00

Meteorologic Model: A14-010YR

Compute Time: 07May2024, 13:29:10

Control Specifications: 3 Day Run - 1 Minute

Show Elements: Initial Selection ▾

Volume Units: ☒ IN ☐ AC-FT

Sorting: Hydrologic ▾

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
J_BRC_210	42.3890654	8816	01Jan2000, 14:24	1.87
J_BRC_240B	42.7749854	8844	01Jan2000, 14:29	1.87
J_BRC_230_210	42.9180164	8863	01Jan2000, 14:29	1.88
J_BRC_240	42.9309934	8863	01Jan2000, 14:29	1.88
J_SBR_110	18.4211787	3115	01Jan2000, 12:41	1.14
J_BRC_240_&_SBR_...	61.3521721	9486	01Jan2000, 14:27	1.66
J_BRC_250	62.0120821	9584	01Jan2000, 14:31	1.68
J_BRC_260	62.9883463	9705	01Jan2000, 14:43	1.71

Project: UBC-HOME

Simulation Run: A14-025YR-REV

Start of Run: 01Jan2000, 00:00

Basin Model: Revised Effective

End of Run: 04Jan2000, 00:00

Meteorologic Model: A14-025YR

Compute Time: 07May2024, 13:34:07

Control Specifications: 3 Day Run - 1 Minute

Show Elements: Initial Selection ▾

Volume Units: ☒ IN ☐ AC-FT

Sorting: Hydrologic ▾

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
J_BRC_210	42.3890654	14080	01Jan2000, 14:09	2.64
J_BRC_240B	42.7749854	14145	01Jan2000, 14:13	2.65
J_BRC_230_210	42.9180164	14178	01Jan2000, 14:13	2.66
J_BRC_240	42.9309934	14179	01Jan2000, 14:13	2.66
J_SBR_110	18.4211787	4397	01Jan2000, 12:40	1.41
J_BRC_240_&_SBR_...	61.3521721	15245	01Jan2000, 14:10	2.28
J_BRC_250	62.0120821	15420	01Jan2000, 14:12	2.32
J_BRC_260	62.9883463	15653	01Jan2000, 14:24	2.36

Project: UBC-HOME

Simulation Run: A14-100YR-REV

Start of Run: 01Jan2000, 00:00

Basin Model: Revised Effective

End of Run: 04Jan2000, 00:00

Meteorologic Model: A14-100YR

Compute Time: 07May2024, 13:46:45

Control Specifications: 3 Day Run - 1 Minute

Show Elements: Initial Selection ▾

Volume Units: ☒ IN ☐ AC-FT

Sorting: Hydrologic ▾

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
J_BRC_210	42.3890654	25441	01Jan2000, 13:48	4.94
J_BRC_240B	42.7749854	25603	01Jan2000, 13:51	4.96
J_BRC_230_210	42.9180164	25683	01Jan2000, 13:51	4.97
J_BRC_240	42.9309934	25686	01Jan2000, 13:52	4.97
J_SBR_110	18.4211787	6686	01Jan2000, 12:38	3.86
J_BRC_240_&_SBR_...	61.3521721	27942	01Jan2000, 13:49	4.64
J_BRC_250	62.0120821	28350	01Jan2000, 13:51	4.68
J_BRC_260	62.9883463	28920	01Jan2000, 13:59	4.74

Project: UBC-HOME

Simulation Run: A14-010YR-PROP

Start of Run: 01Jan2000, 00:00

Basin Model: Proposed

End of Run: 04Jan2000, 00:00

Meteorologic Model: A14-010YR

Compute Time: 07May2024, 13:07:25

Control Specifications: 3 Day Run - 1 Minute

Show Elements: Initial Selection ▾

Volume Units: ☒ IN ☐ AC-FT

Sorting: Hydrologic ▾

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
J_BRC_210	42.3890654	8816	01Jan2000, 14:24	1.87
J_BRC_240B	42.7749854	8844	01Jan2000, 14:29	1.87
J_BRC_230_210	42.9180164	8863	01Jan2000, 14:29	1.88
J_BRC_240	42.9309934	8863	01Jan2000, 14:29	1.88
J_SBR_110	18.4211787	3115	01Jan2000, 12:41	1.14
J_BRC_240_&_SBR_...	61.3521721	9485	01Jan2000, 14:27	1.66
J_BRC_250	62.0120821	9584	01Jan2000, 14:31	1.68
J_BRC_260	62.9883463	9705	01Jan2000, 14:43	1.72

Project: UBC-HOME

Simulation Run: A14-025YR-PROP

Start of Run: 01Jan2000, 00:00

Basin Model: Proposed

End of Run: 04Jan2000, 00:00

Meteorologic Model: A14-025YR

Compute Time: 07May2024, 13:18:19

Control Specifications: 3 Day Run - 1 Minute

Show Elements: Initial Selection ▾

Volume Units: ☒ IN ☐ AC-FT

Sorting: Hydrologic ▾

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
J_BRC_210	42.3890654	14080	01Jan2000, 14:09	2.64
J_BRC_240B	42.7749854	14145	01Jan2000, 14:13	2.65
J_BRC_230_210	42.9180164	14176	01Jan2000, 14:13	2.66
J_BRC_240	42.9309934	14177	01Jan2000, 14:13	2.66
J_SBR_110	18.4211787	4397	01Jan2000, 12:40	1.41
J_BRC_240_&_SBR_...	61.3521721	15242	01Jan2000, 14:10	2.28
J_BRC_250	62.0120821	15418	01Jan2000, 14:12	2.32
J_BRC_260	62.9883463	15650	01Jan2000, 14:24	2.37

Project: UBC-HOME

Simulation Run: A14-100YR-PROP

Start of Run: 01Jan2000, 00:00

Basin Model: Proposed

End of Run: 04Jan2000, 00:00

Meteorologic Model: A14-100YR

Compute Time: 07May2024, 13:24:35

Control Specifications: 3 Day Run - 1 Minute

Show Elements: Initial Selection ▾

Volume Units: ☒ IN ☐ AC-FT

Sorting: Hydrologic ▾

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
J_BRC_210	42.3890654	25441	01Jan2000, 13:48	4.94
J_BRC_240B	42.7749854	25603	01Jan2000, 13:51	4.96
J_BRC_230_210	42.9180164	25667	01Jan2000, 13:51	4.97
J_BRC_240	42.9309934	25670	01Jan2000, 13:52	4.97
J_SBR_110	18.4211787	6686	01Jan2000, 12:38	3.86
J_BRC_240_&_SBR_...	61.3521721	27925	01Jan2000, 13:49	4.64
J_BRC_250	62.0120821	28333	01Jan2000, 13:51	4.68
J_BRC_260	62.9883463	28903	01Jan2000, 13:59	4.74

ATTACHMENT J: BMPs for Upgradient Stormwater

There is surface water, groundwater or stormwater originating upgradient from the site and flowing across the site.

ATTACHMENT K: BMPs for On-site Stormwater

There is approximately 52.96-acres from the site that are involved in the single-family development. This area is split up into three drainage areas which includes both the upgradient and on-site stormwater, therefore both appendix J and K are discussed in this section.

According to a TCEQ RG-348 addendum dated January 20, 2017, a batch detention basin is an extended detention basin modified to operate as a batch reactor. A valve on the first detention basin outlet is used to capture the produced runoff for a fixed amount of time and then release it. As in an extended detention basin, the batch detention basin is primarily used to remove particulate pollutants and to reduce maximum runoff rates associated with development to their pre-development levels. Batch detention basins have superior water quality performance than traditional extended detention basins and achieve a total suspended solids (TSS) removal efficiency of 91%. (Middleton et al., 2006).

See calculations below from the TCEQ provided template spreadsheet:

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.

Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.

Characters shown in red are data entry fields.

Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

1. The Required Load Reduction for the total project:

Calculations from RG-348

Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

where:

 L_M TOTAL PROJECT = Required TSS removal resulting from the proposed development = 80% of increased load A_N = Net increase in impervious area for the project P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson	
Total project area included in plan *	52.96	acres
Predevelopment impervious area within the limits of the plan *	5.49	acres
Total post-development impervious area within the limits of the plan *	31.78	acres
Total post-development impervious cover fraction *	0.60	
P =	32	inches

 L_M TOTAL PROJECT = **22879** lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = **3****2. Drainage Basin Parameters (This information should be provided for each basin):**

Drainage Basin/Outfall Area No. =	1	
Total drainage basin/outfall area =	13.29	acres
Predevelopment impervious area within drainage basin/outfall area =	1.85	acres
Post-development impervious area within drainage basin/outfall area =	7.97	acres
Post-development impervious fraction within drainage basin/outfall area =	0.60	
L_M THIS BASIN =	5330	lbs.

3. Indicate the proposed BMP Code for this basin.Proposed BMP = **Batch Detention**
Removal efficiency = **91** percent

Aqualogic Cartridge Filter
Bioretention
Cortech StormFilter
Constructed Wetland
Extended Detention
Grassy Swale
Retention / Irrigation
Sand Filter
Stormceptor
Vegetated Filter Strips
Vortechs
Wet Basin
Wet Vault

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.RG-348 Page 3-33 Equation 3.7: $L_R = (\text{BMP efficiency}) \times P \times (A_i \times 34.6 + A_p \times 0.54)$

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 =	13.29	acres
A_i =	7.97	acres
A_p =	5.32	acres
L_R =	8118	lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall areaDesired L_M THIS BASIN = **6400** lbs. F = **0.79****6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area.**

Calculations from RG-348

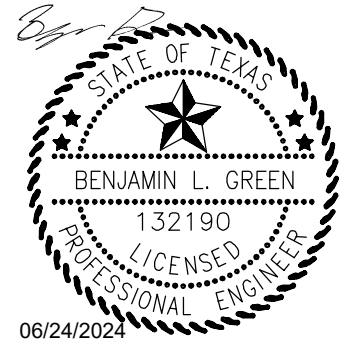
Pages 3-34 to 3-36

Rainfall Depth =	1.04	inches
Post Development Runoff Coefficient =	0.42	
On-site Water Quality Volume =	21088	cubic feet

Calculations from RG-348

Pages 3-36 to 3-37

Off-site area draining to BMP =	3.08	acres
Off-site Impervious cover draining to BMP =	1.85	acres
Impervious fraction of off-site area =	0.60	
Off-site Runoff Coefficient =	0.42	
Off-site Water Quality Volume =	4887	cubic feet
Storage for Sediment =	5195	
Total Capture Volume (required water quality volume(s) x 1.20) =	31171	cubic feet



Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.

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Characters shown in red are data entry fields.

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1. The Required Load Reduction for the total project:

Calculations from RG-348

Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

where:

 L_M TOTAL PROJECT = Required TSS removal resulting from the proposed development = 80% of increased load A_N = Net increase in impervious area for the project P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson	
Total project area included in plan *	52.96	acres
Predevelopment impervious area within the limits of the plan *	5.49	acres
Total post-development impervious area within the limits of the plan *	31.78	acres
Total post-development impervious cover fraction *	0.60	
P	32	inches

 L_M TOTAL PROJECT = **22879** lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = **3****2. Drainage Basin Parameters (This information should be provided for each basin):**Drainage Basin/Outfall Area No. = **2**

Total drainage basin/outfall area =	15.07	acres
Predevelopment impervious area within drainage basin/outfall area =	1.05	acres
Post-development impervious area within drainage basin/outfall area =	9.04	acres
Post-development impervious fraction within drainage basin/outfall area =	0.60	
L_M THIS BASIN =	6956	lbs.

3. Indicate the proposed BMP Code for this basin.Proposed BMP = **Batch Detention**
Removal efficiency = **91** percent

Aqualogic Cartridge Filter
Bioretention
Contech StormFilter
Constructed Wetland
Extended Detention
Grassy Swale
Retention / Irrigation
Sand Filter
Stormceptor
Vegetated Filter Strips
Vortechs
Wet Basin
Wet Vault

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.RG-348 Page 3-33 Equation 3.7: $L_R = (\text{BMP efficiency}) \times P \times (A_i \times 34.6 + A_p \times 0.54)$

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 =	15.07	acres
A_i =	9.04	acres
A_p =	6.03	acres
L_R =	9205	lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall areaDesired L_M THIS BASIN = **7000** lbs. F = **0.76****6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area.**

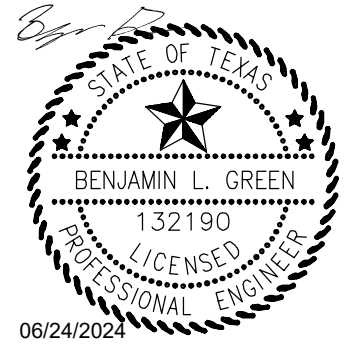
Calculations from RG-348

Pages 3-34 to 3-36

Rainfall Depth =	0.94	inches
Post Development Runoff Coefficient =	0.42	
On-site Water Quality Volume =	21706	cubic feet

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

Off-site area draining to BMP =	3.79	acres
Off-site Impervious cover draining to BMP =	2.26	acres
Impervious fraction of off-site area =	0.60	
Off-site Runoff Coefficient =	0.42	
Off-site Water Quality Volume =	5424	cubic feet
Storage for Sediment =	5426	
Total Capture Volume (required water quality volume(s) x 1.20) =	32556	cubic feet



Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.

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Characters shown in red are data entry fields.

Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

1. The Required Load Reduction for the total project:

Calculations from RG-348

Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

where:

 L_M TOTAL PROJECT = Required TSS removal resulting from the proposed development = 80% of increased load
 A_N = Net increase in impervious area for the project
 P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson	
Total project area included in plan *	52.96	acres
Predevelopment impervious area within the limits of the plan *	5.49	acres
Total post-development impervious area within the limits of the plan *	31.78	acres
Total post-development impervious cover fraction *	0.60	
P =	32	inches

 L_M TOTAL PROJECT = **22879** lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = **3****2. Drainage Basin Parameters (This information should be provided for each basin):**Drainage Basin/Outfall Area No. = **3**

Total drainage basin/outfall area =	24.61	acres
Predevelopment impervious area within drainage basin/outfall area =	2.59	acres
Post-development impervious area within drainage basin/outfall area =	14.77	acres
Post-development impervious fraction within drainage basin/outfall area =	0.60	
L_M THIS BASIN =	10598	lbs.

3. Indicate the proposed BMP Code for this basin.Proposed BMP = **Batch Detention**
Removal efficiency = **91** percent

Aqualogic Cartridge Filter
Bioretention
Contech StormFilter
Constructed Wetland
Extended Detention
Grassy Swale
Retention / Irrigation
Sand Filter
Stormceptor
Vegetated Filter Strips
Vortechs
Wet Basin
Wet Vault

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.RG-348 Page 3-33 Equation 3.7: $L_R = (\text{BMP efficiency}) \times P \times (A_i \times 34.6 + A_p \times 0.54)$

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 =	24.61	acres
A_i =	14.77	acres
A_p =	9.84	acres
L_R =	15032	lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall areaDesired L_M THIS BASIN = **10750** lbs.F = **0.72****6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area.**

Calculations from RG-348

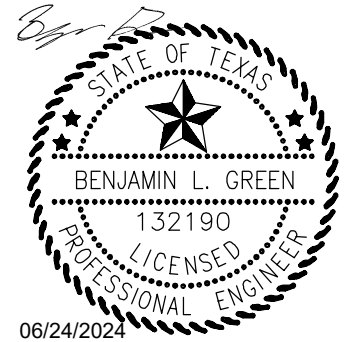
Pages 3-34 to 3-36

Rainfall Depth =	0.83	inches
Post Development Runoff Coefficient =	0.42	
On-site Water Quality Volume =	31241	cubic feet

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

Off-site area draining to BMP =	4.47	acres
Off-site Impervious cover draining to BMP =	2.68	acres
Impervious fraction of off-site area =	0.60	
Off-site Runoff Coefficient =	0.42	
Off-site Water Quality Volume =	5674	cubic feet

Storage for Sediment =	7383	
Total Capture Volume (required water quality volume(s) x 1.20) =	44298	cubic feet



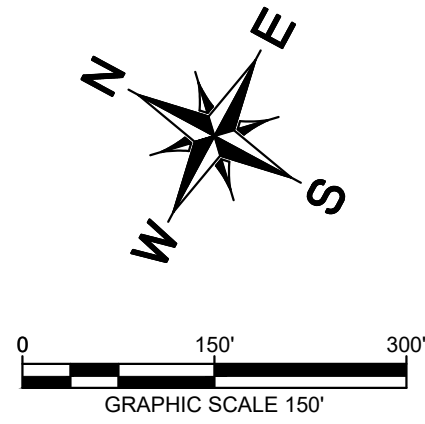
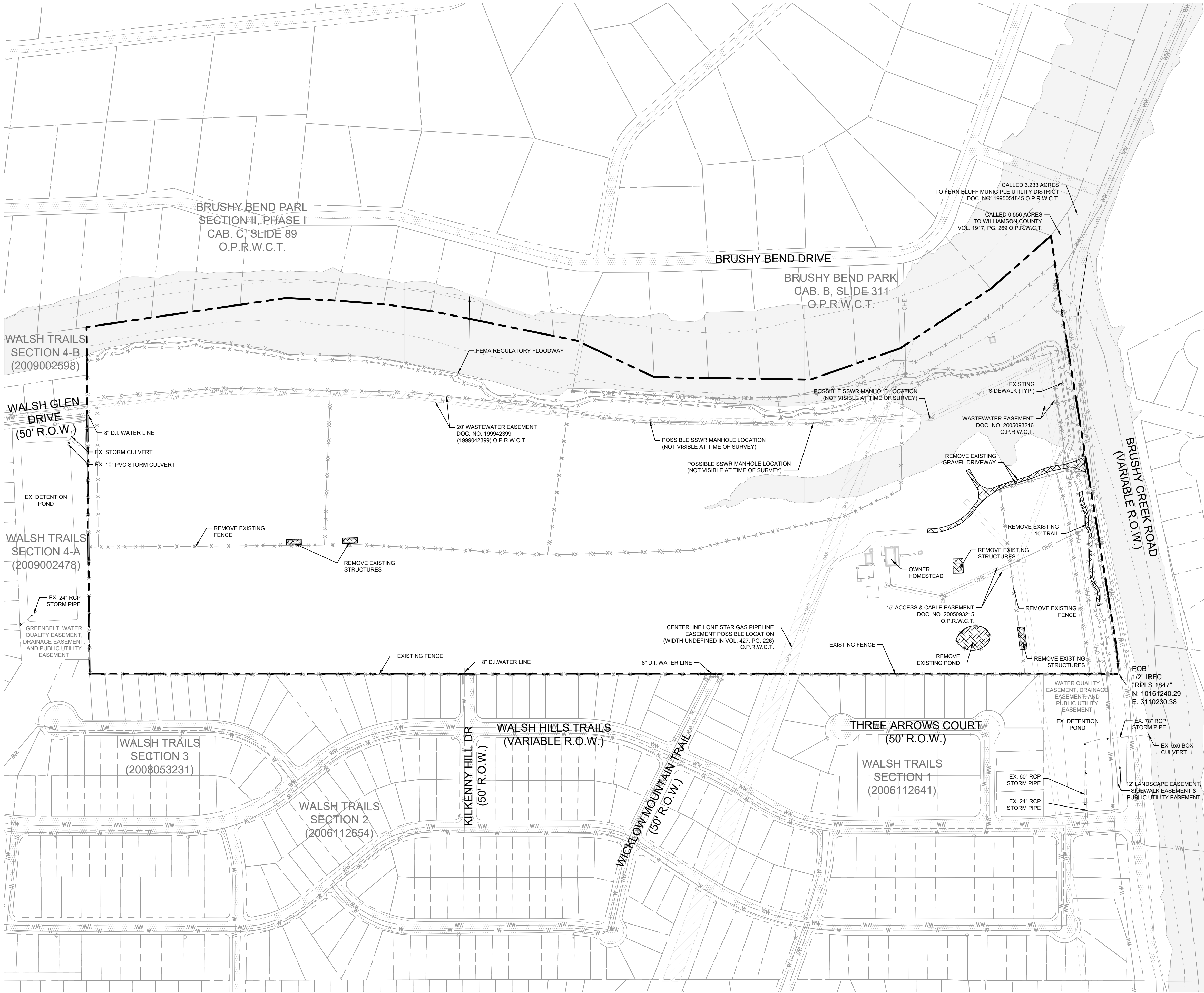
ATTACHMENT L: BMPs for Surface Streams

As shown in the erosion and sediment control plan, to protect surface streams during construction activities silt fence will be placed on the downslope along the property line where construction activities end. In addition, a construction entrance will be utilized to filter stormwater through the rock material, inlet protection will be placed at installed inlets and rock berms will be placed at headwalls to protect the surface streams further from any sediment that does make it through the other BMP controls.

ATTACHMENT M: Construction Plans

Plotted By: Smith, Dallas Date: June 23, 2024 02:27:53pm File Path: \\saulnier01\Project\03\TS_SAU\Data\SAU_Civil\069285504 - Walsh Brushy Creek\Cad\PH1\PlanSheets\C - Existing Conditions and Demo Plan.dwg

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LEGEND

	PROPERTY LINE
	EXISTING OVERHEAD ELECTRIC LINE
	EXISTING WATER LINE
	EXISTING WASTEWATER LINE
	EXISTING STORM SEWER LINE
	EXISTING POWER POLE
	EXISTING FIRE HYDRANT
	EXISTING WATER VALVE
	EXISTING WATER METER
	EXISTING FENCE
	DEMOLITION AREA: ITEMS TO BE REMOVED
	TREE TO REMAIN
	TREE TO BE REMOVED
	HERITAGE TREE
	FEMA FLOODPLAIN

NOTES:

1. ALL UNDERGROUND UTILITIES SHOULD BE LOCATED PRIOR TO CONSTRUCTION.

BENCHMARKS

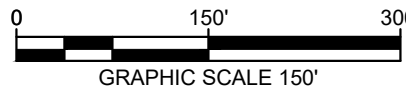
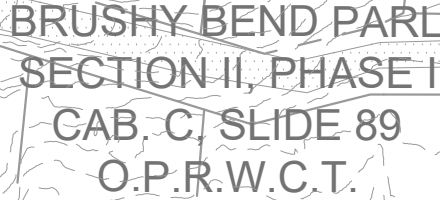
1. MAGNAIL LOCATED ON THE EAST BACK OF CURB OF WALSH GLEN DRIVE, 4400 FEET SOUTHEAST FROM THE INTERSECTION OF WALSH GLEN DRIVE AND ZACHARYS RUN.
N: 10164408.66
E: 3109440.29
ELEVATION=778.52'
2. MAGNAIL LOCATED ON THE SOUTH SIDE OF A SIDEWALK ON THE NORTH SIDE OF BRUSHY CREEK ROAD 431 FEET EAST OF THE INTERSECTION OF BRUSHY CREEK ROAD AND WASH HILL TRAIL.
N: 10161256.37
E: 3110195.86
ELEVATION=773.78'



Know what's below.
Call before you dig.

WARNING: CONTRACTOR IS TO
VERIFY PRESENCE AND EXACT
LOCATION OF ALL UTILITIES
PRIOR TO CONSTRUCTION.

KIMLEY-HORN		No.		REVISIONS		DATE		BY	
301 SOUTHWEST PARKWAY, BUILDING 2, SUITE 100 PHOENIX, AZ 85004 WWW.KIMLEY-HORN.COM © 2024 KIMLEY-HORN AND ASSOCIATES, INC. TPE Firm No. 928									
KHA PROJECT 069285504		DATE JUNE 2024		SCALE: AS SHOWN		DESIGNED BY: DS		DRAWN BY: AE/DB	
								CHECKED BY: BG	
EXISTING CONDITIONS & DEMO PLAN									
WALSH TRAILS SECTION 5 & 6 CITY OF CEDAR PARK WILLIAMSON COUNTY, TEXAS									
SHEET NUMBER 5 OF 89									
2024-1-SI									



	PROPERTY LINE
	SILT FENCE
	PROPOSED INLET PROTECTION
	CONCRETE WASHOUT PIT
	CONSTRUCTION ENTRANCE
	ROCK BERM
	EXISTING CONTOURS
	PROPOSED CONTOURS
	LIMITS OF CONSTRUCTION AREA
	SCREENING FENCE
	STAGING AND SPOILS AREA
	J-HOOKS
	FEMA FLOODPLAIN

1. ALL DISTURBED AREAS SHALL BE RE-VEGETATED TO MEET THE REQUIREMENTS OF THE CITY OF CEDAR PARK'S ORDINANCES.
2. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED BY INSPECTOR AT TIME OF CONSTRUCTION.
3. AREA OF DISTURBANCE: 49.59 ACRES
4. PRIOR TO SCHEDULING THE PRECONSTRUCTION MEETING, CONTRACTOR SHALL PROVIDE A NOTICE OF INTENT APPROVED BY TCEQ TO THE CITY'S MSA COORDINATOR, UPLOAD TCEQ NOI TO MGO, AND POST ON-SITE WITH GGP AND SWPPP.

1. MAGNAIL LOCATED ON THE EAST BACK OF CURB OF WALSH GLN DRIVE, +400 FEET SOUTHEAST FROM THE INTERSECTION OF WALSH GLN DRIVE AND ZACHARYS RUN.
N: 10164408.66'
E: 3109440.29'
ELEVATION=778.52'
2. MAGNAIL LOCATED ON THE SOUTH SIDE OF A SIDEWALK ON THE NORTH SIDE OF BRUSHY CREEK ROAD +431 FEET EAST OF THE INTERSECTION OF BRUSHY CREEK ROAD AND WASH HILL TRAIL N.
N: 10161256.37'
E: 3110195.86'
ELEVATION=773.78'



WARNING: CONTRACTOR IS TO
VERIFY PRESENCE AND EXACT
LOCATION OF ALL UTILITIES
PRIOR TO CONSTRUCTION.

Kimley»»Horn
5301 SOUTHWEST PARKWAY, BUILDING 2, SUITE 100
Austin, Texas 78741
PHONE: 512-646-2337
WWW.KIMLEY-HORN.COM
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TBP# Firm No. 928

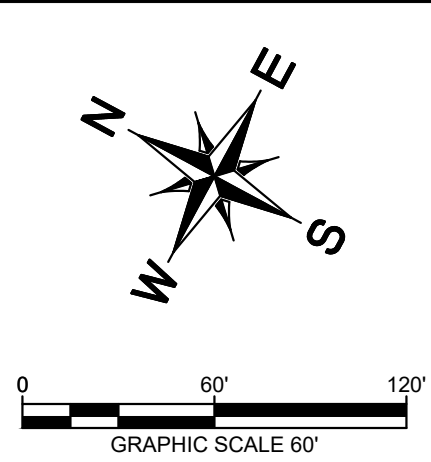
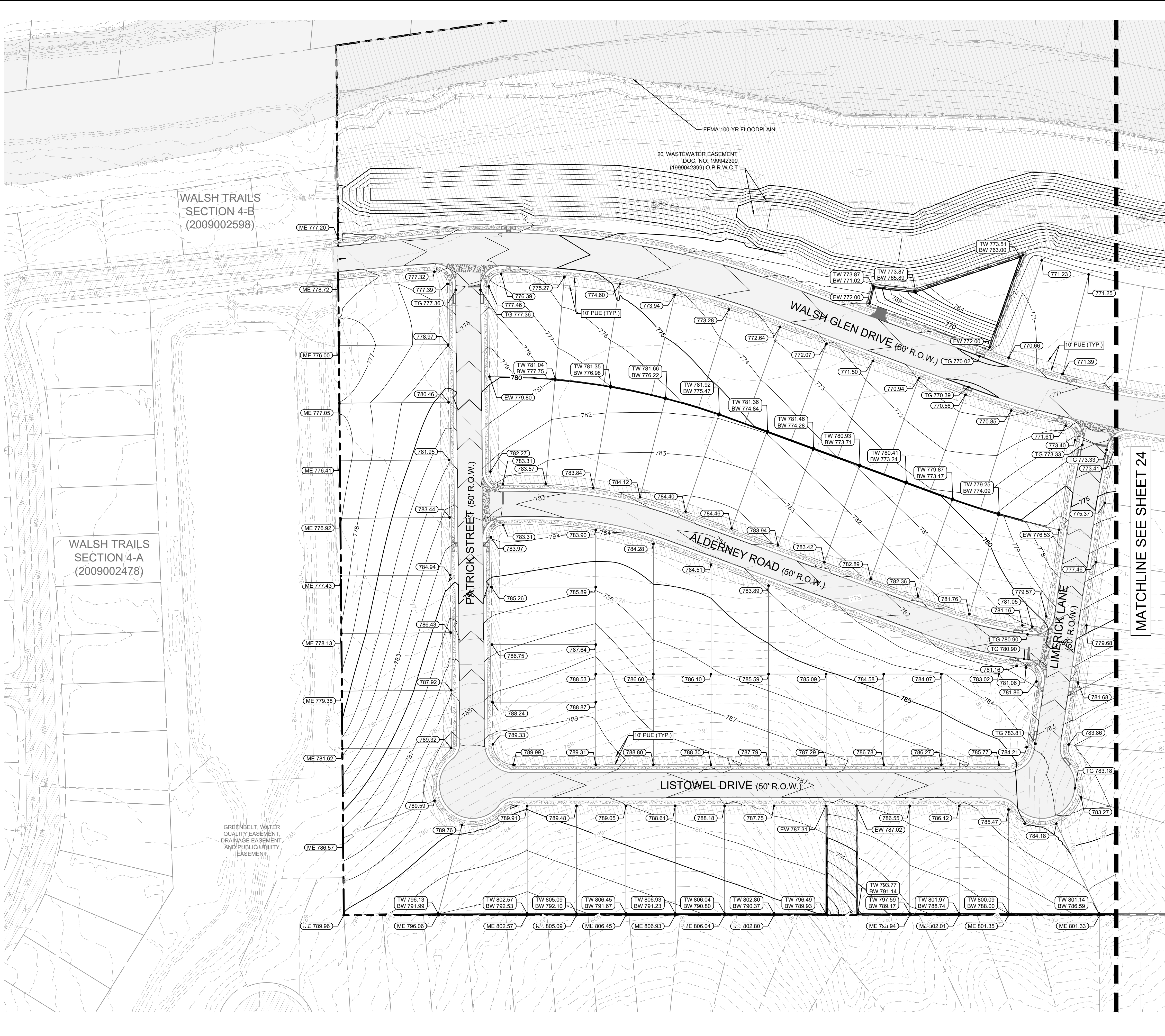


**WALSH TRAILS
SECTION 5 & 6**
CITY OF CEDAR PARK
WILLIAMSON COUNTY, TEXAS

2024-1-SI

Plotted By: Smith, Dallas Date: June 23, 2024 02:35:00pm File Path: \\saouffier01\Project03\TS_SAU\Data\SAU_Civil\069285504 - Walsh Brushy Creek\Cad\PH1\PlanSheets\C - Grading\Plan.dwg

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LEGEND

XXX.XX

ME XXX.XX

555

555

100-YR FP

PROPERTY LINE

PROPOSED TOP GRADE / TOP OF PAVEMENT ELEVATION

MATCH EXISTING ELEVATION

PROPOSED CONTOUR

EXISTING CONTOUR

FEMA 100-YR FLOODPLAIN

GRADING GENERAL NOTES

1. CONTRACTOR SHALL CUT 3' BEHIND BACK OF CURB TO SUBGRADE ELEVATION.

2. ALL PERIMETER SLOPES TO NATURAL GROUND ARE TO BE 4:1 MAX, UNLESS OTHERWISE NOTED.

3. ALL SIDEWALKS SHALL NOT EXCEED A MAXIMUM 2% CROSS SLOPE & A 5% LONGITUDINAL SLOPE.

4. GRADES PROVIDED ARE TO TOP OF PAVEMENT AND/OR TOP OF GROUND. CONTRACTOR TO MASS GRADE TO TOP OF PAVEMENT SUBGRADE FOR FUTURE ROADWAYS, AND TO TOP OF FINISHED PAD, AND TO TOP OF GROUND FOR LOTS/LANDSCAPE AREAS.

5. REFER TO GEOTECH REPORT BY _____ REPORT NO. _____

6. HOMEBUILDER MUST MAINTAIN LOT GRADING CRITERIA AS FOLLOWS:

~ FRONT YARD: 1.1% - 6% (MAX DRIVEWAY SLOPE OF 10%)

~ MINIMUM LOT SLOPE: 1.1% FOR A & C LOTS, 1.5% FOR B LOTS

~ MAX BACKYARD SLOPE: 10% - 15%

7. IF THERE IS A BREAK OF MORE THAN 14 DAYS WHILE GRADING AND/OR BETWEEN ROUGH GRADING COMPLETION AND CONSTRUCTION START WHERE NO WORK IS DONE ON A SITE OR PORTION OF A SITE, TEMPORARY (OR PERMANENT) STABILIZATION IS REQUIRED PER T&E 150000 PART III F.2 (B) III. USE TEMPORARY (OR PERMANENT) SEEDING, ROCK, GRAVEL (1" MINIMUM), CONCRETE RIP-RAP, DEGRADABLE STRAW MATTING, SHREDED LANDSCAPE MULCH, DEGRADABLE SOIL RETENTION BLANKETS, OR SIMILAR. NOTE THAT MATTING, MULCH, OR BLANKETS REQUIRE ONGOING MAINTENANCE.

KEY MAP

SCALE: 1:1500

SHEET 23

SHEET 24

SHEET 25

BRUSHY CREEK RD.

LOT GRADING TYPE A

ALL DRAINAGE TO STREET

LOT GRADING TYPE C

ALL DRAINAGE TO REAR LOT LINE

BENCHMARKS

1. MAGNAIL LOCATED ON THE EAST BACK OF CURB OF WALSH GLEN DRIVE, 4400 FEET SOUTHEAST FROM THE INTERSECTION OF WALSH GLEN DRIVE AND ZACHARYS RUN.

N: 10164408.66

E: 31094410.29

ELEVATION=778.52'

2. MAGNAIL LOCATED ON THE SOUTH SIDE OF A SIDEWALK ON THE NORTH SIDE OF BRUSHY CREEK ROAD 4331 FEET EAST OF THE INTERSECTION OF BRUSHY CREEK ROAD AND WASH HILL TRAIL.

N: 10161256.37

E: 3110195.86'

ELEVATION=773.78'

Know what's below.
Call before you dig.

WARNING: CONTRACTOR IS TO VERIFY PRESENCE AND EXACT LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.

No.	REVISIONS	DATE	BY

Kimley»Horn

5301 SOUTHWEST PARKWAY, BUILDING 2, SUITE 100
DALLAS, TEXAS 75246-2237
WWW.KIMLEY-HORN.COM
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T&E Firm No. 928

STATE OF TEXAS
BENJAMIN L. GREEN
132190
LICENSED PROFESSIONAL ENGINEER
07/09/2024

KHA PROJECT

069285504

DATE

JUNE 2024

SCALE:

AS SHOWN

DESIGNED BY:

DS

DRAWN BY:

AE/DB

CHECKED BY:

BG

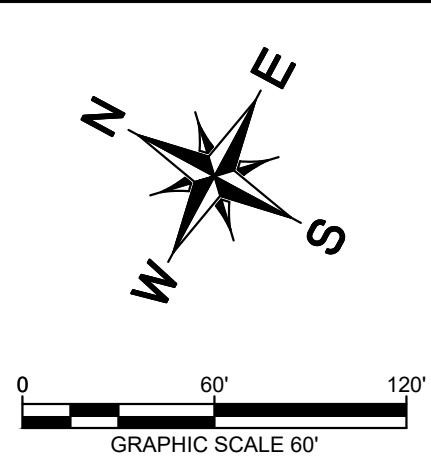
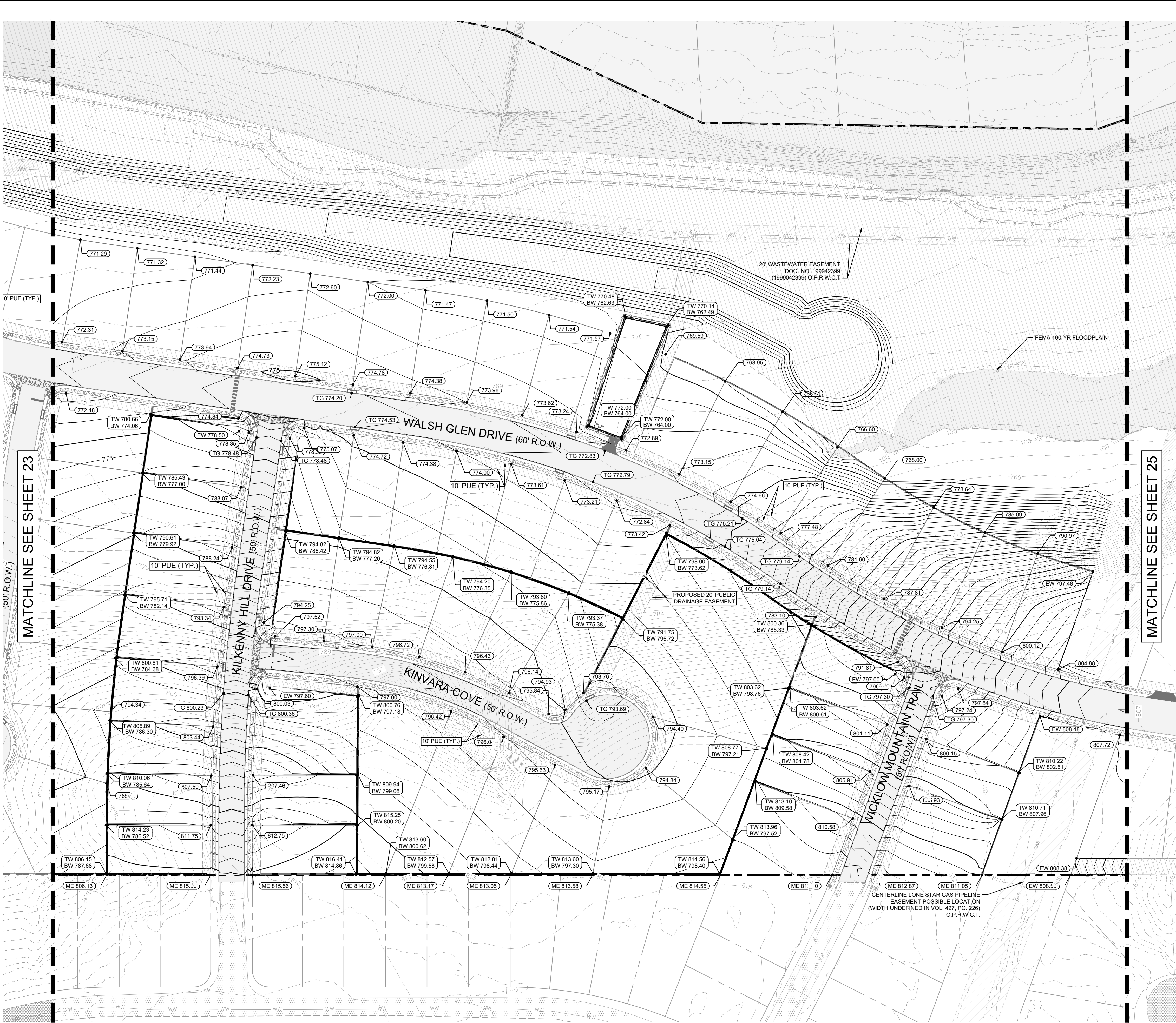
GRADING PLAN
(SHEET 1 OF 3)

WALSH TRAILS
SECTION 5 & 6
CITY OF CEDAR PARK
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
23 OF 89

2024-1-SI

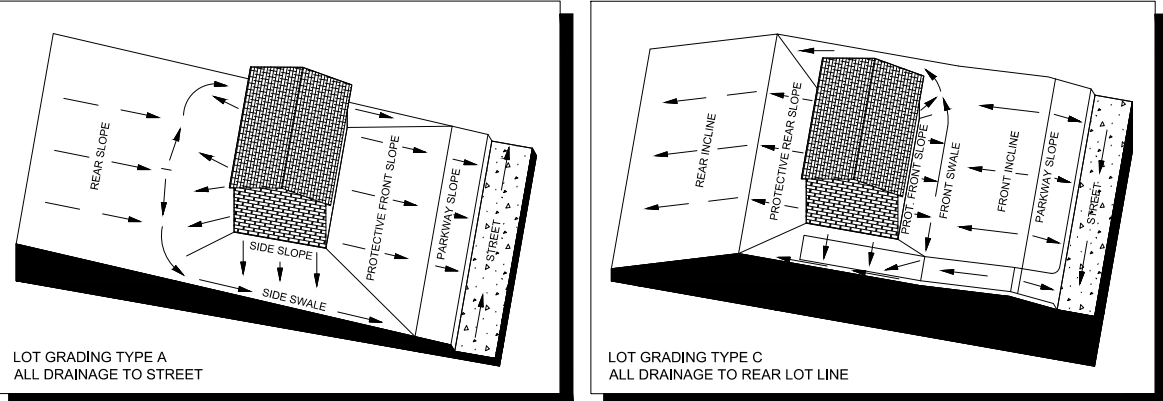
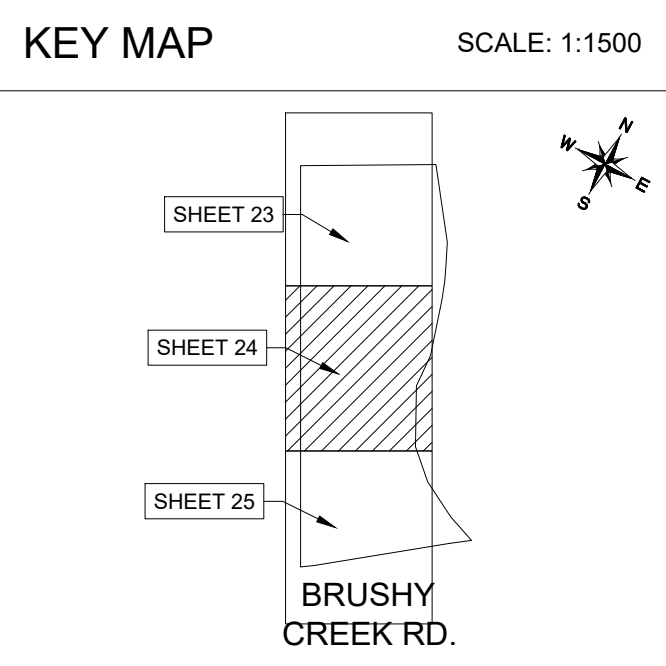
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LEGEND

---	PROPERTY LINE
• XXX.XX	PROPOSED TOP GRADE / TOP OF PAVEMENT ELEVATION
• ME XXX.XX	MATCH EXISTING ELEVATION
---	PROPOSED CONTOUR
---	EXISTING CONTOUR
---	FEMA 100-YR FLOODPLAIN

- GRADING GENERAL NOTES**
- CONTRACTOR SHALL CUT 3' BEHIND BACK OF CURB TO SUBGRADE ELEVATION.
 - ALL PERIMETER SLOPES TO NATURAL GROUND ARE TO BE 4:1 MAX, UNLESS OTHERWISE NOTED.
 - ALL SIDEWALKS SHALL NOT EXCEED A MAXIMUM 2% CROSS SLOPE & A 5% LONGITUDINAL SLOPE.
 - GRADES PROVIDED ARE TO TOP OF PAVEMENT AND/OR TOP OF GROUND. CONTRACTOR TO MASS GRADE TO TOP OF PAVEMENT SUBGRADE FOR FUTURE ROADWAYS, AND TO TOP OF FINISHED PAD, AND TO TOP OF GROUND FOR LOTS/LANDSCAPE AREAS.
 - REFER TO GEOTECH REPORT BY _____ REPORT NO. _____
 - HOMEOWNER MUST MAINTAIN LOT GRADING CRITERIA AS FOLLOWS:
 - FRONT YARD: 1.1% - 6% (MAX DRIVEWAY SLOPE OF 10%)
 - MINIMUM LOT SLOPE: 1.1% FOR A & C LOTS, 1.5% FOR B LOTS
 - MAX BACKYARD SLOPE: 10% - 15%
 - IF THERE IS A BREAK OF MORE THAN 14 DAYS WHILE GRADING AND/OR BETWEEN ROUGH GRADING COMPLETION AND CONSTRUCTION START WHERE NO WORK IS DONE ON A SITE OR PORTION OF A SITE, TEMPORARY (OR PERMANENT) STABILIZATION IS REQUIRED PER T&E150000 PART III.F.2.(B). USE TEMPORARY (OR PERMANENT) SEEDING, ROCK, GRAVEL (1" MINIMUM), CONCRETE RIP-RAP, DEGRADABLE STRAW MATTING, SHREDDED LANDSCAPE MULCH, DEGRADABLE SOIL RETENTION BLANKETS, OR SIMILAR. NOTE THAT MATTING, MULCH, OR BLANKETS REQUIRE ONGOING MAINTENANCE.



- BENCHMARKS**
- MAGNAIL LOCATED ON THE EAST BACK OF CURB OF WALSH GLEN DRIVE, 400 FEET SOUTHEAST FROM THE INTERSECTION OF WALSH GLEN DRIVE AND ZACHARY'S RUN.
N: 10164408.66'
E: 3109440.29'
ELEVATION=778.52'
 - MAGNAIL LOCATED ON THE SOUTH SIDE OF A SIDEWALK ON THE NORTH SIDE OF BRUSHY CREEK ROAD 3431 FEET EAST OF THE INTERSECTION OF BRUSHY CREEK ROAD AND WASH HILL TRAIL.
N: 10161256.37'
E: 3110195.86'
ELEVATION=773.78'



Know what's below.
Call before you dig.

WARNING: CONTRACTOR IS TO VERIFY PRESENCE AND EXACT LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.

No.	REVISIONS	DATE	BY

Kimley»Horn

5301 SOUTHWEST PARKWAY, BUILDING 2, SUITE 100
PHOENIX, AZ 85042-2237
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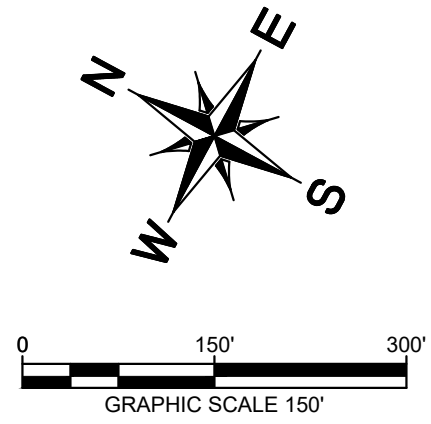
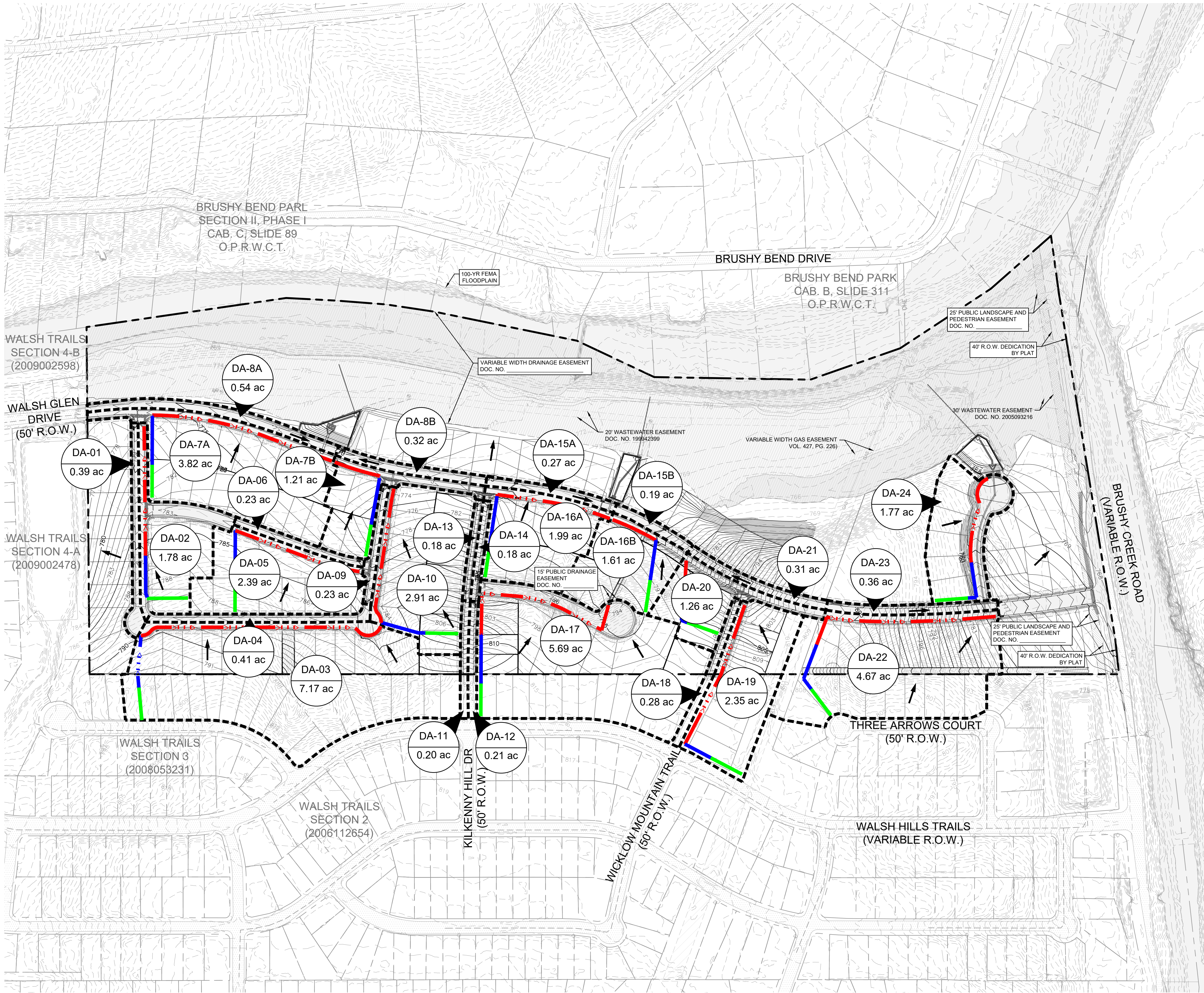
STATE OF TEXAS
BENJAMIN L. GREEN
132190
LICENSED PROFESSIONAL ENGINEER
07/09/2024

KHA PROJECT	DATE	SCALE:	DESIGNED BY:	DS	DRAWN BY:	AE/DB	CHECKED BY:	BG
069285504	JUNE 2024	AS SHOWN						

**GRADING PLAN
(SHEET 2 OF 3)**

**WALSH TRAILS
SECTION 5 & 6
CITY OF CEDAR PARK
WILLIAMSON COUNTY, TEXAS**

Plotted By: Smith, Dallas Date: June 23, 2024 02:39:05pm File Path: \\saufier01\Project03\TS_SAU\Data\SAU_Civil\069285504 - Walsh Brushy Creek\Cad\PH1\PlanSheets\C - Inlet Drainage Area Map.dwg
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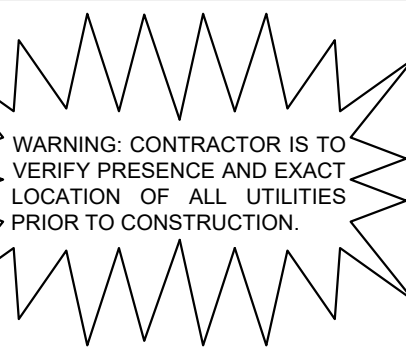
LEGEND

	AREA DESIGNATOR
	AREA IN ACRES
	PROPERTY LINE
	PROPOSED STORM DRAIN LINE
	EXISTING STORM DRAIN LINE
	PROPOSED DRAINAGE DIVIDE
	PROPOSED STORM DRAIN INLET
	PROPOSED STORM DRAIN MANHOLE
	PROPOSED STORM DRAIN HEADWALL
	PROPOSED FLOW DIRECTION
	PROPOSED CONTOUR
	EXISTING CONTOUR
	SHEET FLOW
	SHALLOW CONCENTRATED FLOW
	CHANNEL FLOW

- BENCHMARKS**
- MAGNAIL LOCATED ON THE EAST BACK OF CURB OF WALSH GLEN DRIVE, 400 FEET SOUTHEAST FROM THE INTERSECTION OF WALSH GLEN DRIVE AND ZACHARYS RUN.
N: 10164408.66'
E: 31094410.29'
ELEVATION=778.52'
 - MAGNAIL LOCATED ON THE SOUTH SIDE OF A SIDEWALK ON THE NORTH SIDE OF BRUSHY CREEK ROAD 431 FEET EAST OF THE INTERSECTION OF BRUSHY CREEK ROAD AND WASH HILL TRAIL.
N: 10161256.37'
E: 3110195.86'
ELEVATION=773.78'



Know what's below.
Call before you dig.



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STATE OF TEXAS BENJAMIN L. GREEN 132190 LICENSED PROFESSIONAL ENGINEER 07/09/2024		KHA PROJECT: 069285504 DATE: JUNE 2024 SCALE: AS SHOWN DESIGNED BY: DS DRAWN BY: AE/DB CHECKED BY: BG	
INLET DRAINAGE AREA MAP			
WALSH TRAILS SECTION 5 & 6 CITY OF CEDAR PARK WILLIAMSON COUNTY, TEXAS			
SHEET NUMBER 26 OF 89			
2024-1-SI			

Plotted By: Smith, Dallas Date: June 23, 2024, 02:39:10pm File Path: \\souffier01\Project03\TS_SAU\Data\SAU_Civil\069285504 - Walsh Brushy Creek\Cad\PH1\PlanSheets\C - Inlet Drainage Area Map.dwg

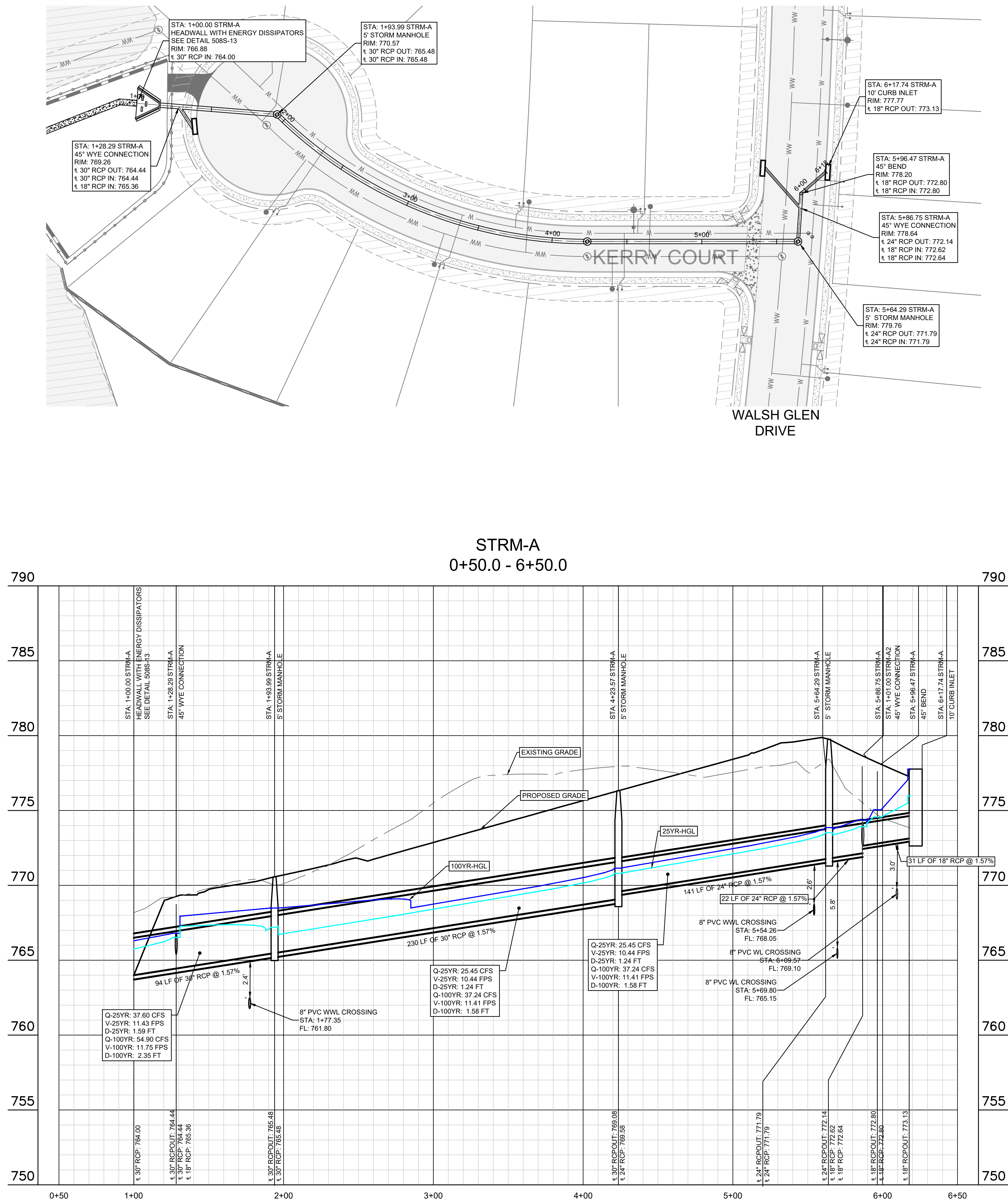
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Kimley»Horn																		
Inlet Peak Flow Calculations - Rational Method																		
Formulas:		Q = C i A			Hydrologic Runoff Coefficients										IDF Coefficients			
		Q = Peak Runoff (cfs)			2 yr 10 yr 25 yr 100 yr										2 yr 10 yr 25 yr 100 yr			
		C = Weighted Runoff Coefficient			Impervious C (Concrete) 0.75 0.83 0.88 0.97										a 45.24 61.25 69.96 77.31			
		i = Rainfall intensity (in/hr)			Grass, 75%+ Cover, 2-7% slopes 0.37 0.43 0.46 0.53										b 9.339 8.352 7.941 6.832			
		A = Drainage Area (acres)													c 0.399 0.7228 0.6954 0.6524			
RUNOFF COEFFICIENT (C)											RAINFALL INTENSITY (I)				PEAK RUNOFF (Q)			
Inlet	Drainage Area	Area (sf)	Area (Acres)	Impervious Cover (Acres)	% I.C.	C 2-Year	C 10-Year	C 25-Year	C 100-Year	Tc (min)	I 2-Year	I 10-Year	I 25-Year	I 100-Year	Q 2-Year	Q 10-Year	Q 25-Year	Q 100-Year
1	DA-01	17048	0.39	0.30	77%	0.66	0.74	0.79	0.871	5.00	15.63	9.41	11.79	15.42	4.06	2.72	3.62	5.26
2	DA-02	77587	1.78	1.09	81%	0.60	0.67	0.72	0.799	20.58	11.66	5.38	6.81	8.92	12.51	6.47	8.69	12.69
3	DA-03	312270	7.17	3.68	51%	0.56	0.64	0.68	0.756	21.63	11.50	5.24	6.64	8.70	46.56	23.87	32.13	47.12
4	DA-04	17736	0.41	0.32	78%	0.67	0.74	0.79	0.873	5.00	15.63	9.41	11.79	15.42	4.24	2.84	3.78	5.48
5	DA-05	103974	2.39	0.32	13%	0.42	0.48	0.52	0.589	16.93	12.28	5.93	7.49	9.79	12.33	6.84	9.22	13.75
6	DA-06	10029	0.23	0.19	81%	0.68	0.75	0.80	0.887	5.00	15.63	9.41	11.79	15.42	2.44	1.64	2.18	3.15
7	DA-7A	166570	3.82	0.19	5%	0.39	0.45	0.48	0.552	16.58	12.35	5.99	7.56	9.88	18.34	10.30	13.89	20.84
	DA-7B	52633	1.21	0.19	15%	0.43	0.49	0.53	0.598	12.70	13.17	6.77	8.52	11.12	6.82	4.02	5.41	8.04
8	DA-8A	23591	0.54	0.43	79%	0.67	0.75	0.79	0.879	5.00	15.63	9.41	11.79	15.42	5.69	3.81	5.07	7.35
	DA-8B	13911	0.32	0.26	81%	0.68	0.76	0.80	0.888	5.00	15.63	9.41	11.79	15.42	3.39	2.27	3.02	4.37
9	DA-09	9841	0.23	0.19	84%	0.69	0.77	0.81	0.900	5.00	15.63	9.41	11.79	15.42	2.44	1.63	2.17	3.14
10	DA-10	126911	2.91	1.53	52%	0.57	0.64	0.68	0.761	11.53	13.46	7.06	8.87	11.58	22.33	13.15	17.59	25.67
11	DA-11	8776	0.20	0.16	79%	0.67	0.75	0.79	0.879	5.00	15.63	9.41	11.79	15.42	2.12	1.42	1.89	2.73
12	DA-12	9318	0.21	0.16	75%	0.65	0.73	0.77	0.859	5.00	15.63	9.41	11.79	15.42	2.19	1.47	1.95	2.83
13	DA-13	7852	0.18	0.14	79%	0.67	0.75	0.79	0.879	5.00	15.63	9.41	11.79	15.42	1.89	1.27	1.69	2.44
14	DA-14	7852	0.18	0.14	80%	0.67	0.75	0.80	0.881	5.00	15.63	9.41	11.79	15.42	1.90	1.27	1.69	2.45
15	DA-15A	11697	0.27	0.23	84%	0.57	0.64	0.69	0.766	5.00	15.63	9.41	11.79	15.42	2.41	1.63	2.17	3.17
	DA-15B	8113	0.19	0.15	83%	0.68	0.76	0.81	0.884	5.00	15.63	9.41	11.79	15.42	1.99	1.33	1.77	2.57
16	DA-16A	86780	1.99	1.09	55%	0.58	0.65	0.69	0.771	10.33	13.78	7.38	9.28	12.10	15.87	9.54	12.75	18.58
	DA-16B	70156	1.61	0.56	35%	0.50	0.57	0.61	0.682	8.76	14.25	7.86	9.88	12.88	11.50	7.20	9.62	14.15
17	DA-17	247782	5.69	3.07	54%	0.57	0.65	0.69	0.767	22.09	11.43	5.19	6.57	8.61	37.38	19.05	25.64	37.57
18	DA-18	12067	0.28	0.22	79%	0.67	0.75	0.79	0.879	5.00	15.63	9.41	11.79	15.42	2.91	1.95	2.59	3.76
19	DA-19	102474	2.35	1.01	43%	0.53	0.60	0.64	0.718	21.57	11.51	5.25	6.65	8.71	14.41	7.42	10.00	14.71
20	DA-20	54868	1.26	0.56	44%	0.54	0.61	0.65	0.726	10.31	13.79	7.39	9.29	12.11	9.36	5.66	7.56	11.07
21	DA-21	13567	0.31	0.26	83%	0.69	0.76	0.81	0.895	5.00	15.63	9.41	11.79	15.42	3.34	2.23	2.97	4.30
22	DA-22	203569	4.67	2.30	49%	0.56	0.63	0.67	0.747	19.27	11.87	5.56	7.03	9.21	30.90	16.30	21.91	32.12
23	DA-23	15691	0.36	0.32	89%	0.71	0.79	0.83	0.921	5.00	15.63	9.41	11.79	15.42	3.98	2.66	3.54	5.12
24	DA-24	77142	1.77	1.08	81%	0.60	0.67	0.71	0.797	9.47	14.03	7.64	9.59	12.51	14.92	9.10	12.15	17.66

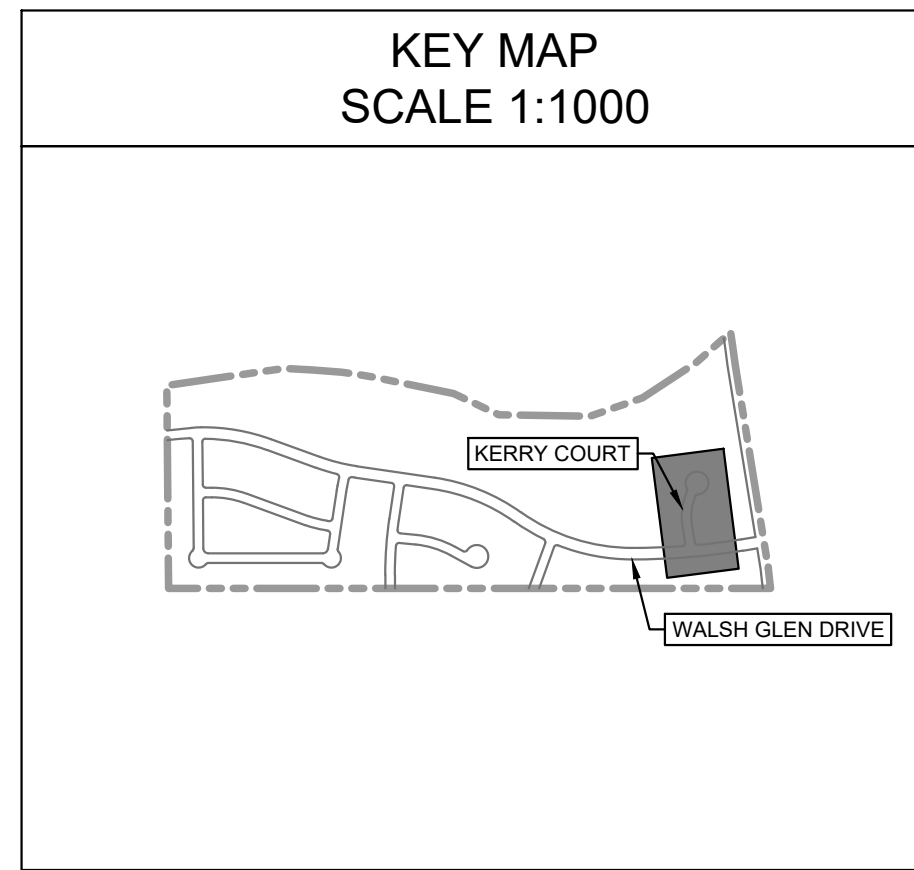
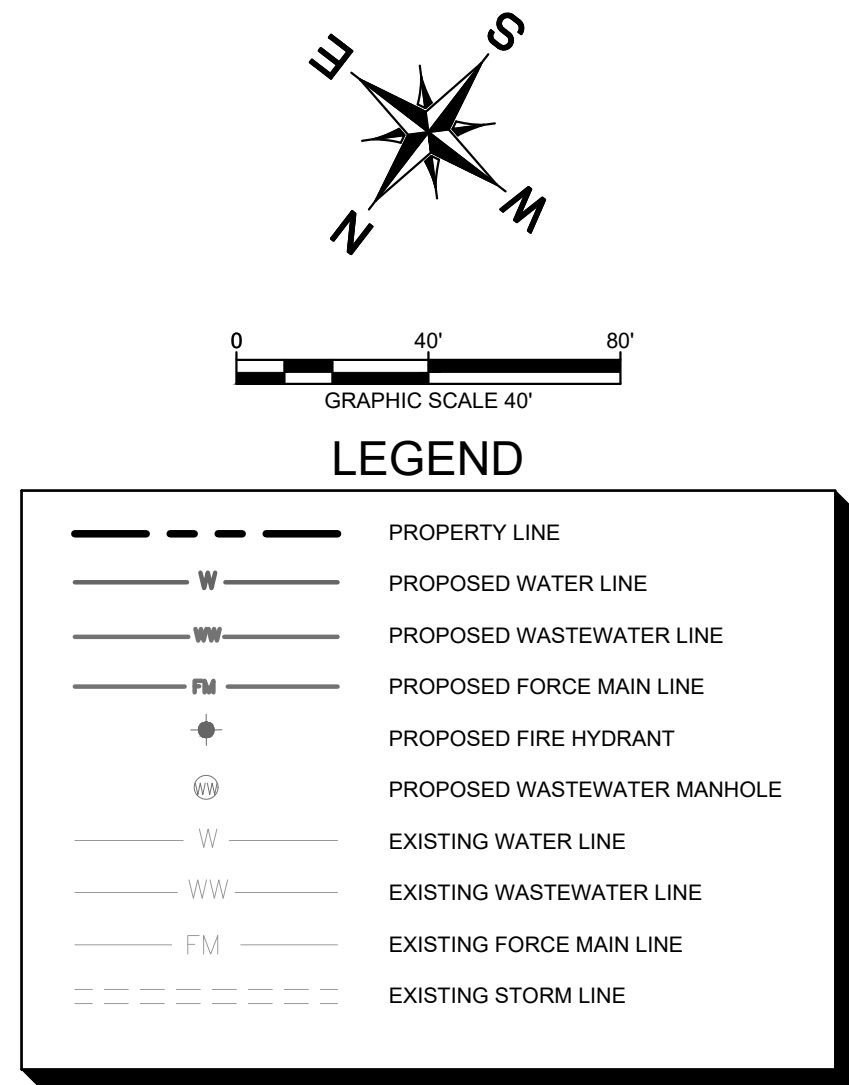
Kimley»Horn																	
Inlet design base on FHWA HEC-22, 3rd Edition Chapter 4 "Pavement Drainage"																	
Variable Definitions												Constant Values					
W	depressed width	E ₀	ratio of flow (Q _w /Q)	C _w (constant)	2.3												
a	gutter depression	L _T	inlet length (100% flow intercept)	K _u (constant)	0.56												
S _e	equivalent cross slope	d _o	effective head, orifice	K _t (constant)	0.6												
S _w	cross slope of depressed width	d _i	depth at lip of curb opening	C _o (constant)	0.67												
T	spread or ponded width	d	depth at normal cross-slope	S _x (cross-slope)	2.00%												
S _L	longitudinal slope			Manning's Coefficient (n)	0.013												
ON-GRADE CURB INLETS (25-YR)																	
Inlet Characteristics						Street Drainage					Inlet Drainage						
Inlet #	Drainage Area	Q (cfs)	Q _{pass} (cfs)	Q _{total} (cfs)	Inlet Length	W (ft)	a (in)	S _L	T (ft)	d (in)	S _w	E ₀	S _e	L _T (ft)	Efficiency	Q _{intercept} (cfs)	Q _{pass} (cfs)
1	DA-01	3.62	0.00	3.62	10	1.5	7.27	2.62%	9.07	2.18	42.39%	0.79	35.6%	8.70	100.0%	3.62	0.00
2	DA-02	8.69	0.00	8.69	10	1.5	7.27	2.62%	12.59	3.02	42.39%	0.63	28.7%	14.29	88.5%	7.69	1.00
3	DA-03	32.13	0.00	32.13	10	1.5	7.27	2.34%	20.99	5.04	42.39%	0.37	17.5%	32.17	48.8%	15.69	16.44
4	DA-04	3.78	0.00	3.78	10	1.5	7.27	2.85%	9.07	2.18	42.39%	0.79	35.6%	9.08	100.0%	3.78	0.00
5	DA-05	3.78	0.00	3.78	10	1.5	7.27	0.09%	17.33	4.16	42.39%	0.46	21.4%	4.37	100.0%	3.78	0.00
6	DA-06	9.22	0.00	9.22	10	1.5	7.27	0.09%	24.21	5.81	42.39%	0.31	15.0%	7.87	100.0%	9.22	0.00
9	DA-09	2.17	0.00	2.17	10	1.5	7.27	2.86%	7.35	1.76	42.39%	0.87	38.9%	6.82	100.0%	2.17	0.00
10	DA-10	17.59	0.00	17.59	10	1.5	7.27	2.86%	16.13	3.87	42.39%	0.50	23.0%	22.52	65.2%	11.48	6.12
11	DA-11	1.89	0.00	1.89	10	1.5	7.27	7.35%	5.85	1.40	42.39%	0.93	41.5%	8.22	100.0%	1.89	0.00
12	DA-12	1.95	0.00	1.95	10	1.5	7.27	7.35%	5.93	1.42	42.39%	0.93	41.3%	8.36	100.0%	1.95	0.00
13	DA-13	1.69	0.00	1.69	10	1.5	7.27	6.65%	5.71	1.37	42.39%	0.94	41.6%	7.59	100.0%	1.69	0.00
14	DA-14	1.69	0.00	1.69	10	1.5	7.27	6.65%	5.72	1.37	42.39%	0.94	41.6%	7.60	100.0%	1.69	0.00
17	DA-17	25.64	0.00	25.64	10	1.5	7.27	1.93%	20.00	4.80	42.39%	0.39	18.5%	26.76	56.9%	14.60	11.05
18	DA-18	2.59	0.00	2.59	10	1.5	7.27	8.09%	6.47	1.55	42.39%	0.91	40.5%	9.81	100.0%	2.59	0.00
19	DA-19	10.00	0.00	10.00	10	1.5	7.27	8.09%	10.74	2.58	42.39%	0.71	32.2%	19.83	71.7%	7.17	2.83
20	DA-20	7.56	2.83	10.39	10	1.5	7.27	5.04%	11.90	2.86	42.39%	0.66	30.0%	18.27	76.0%	7.90	2.49
21	DA-21	2.97	0.00	2.97	10	1.5	7.27	5.04%	7.44	1.79	42.39%	0.87	38.8%	9.25	100.0%	2.97	0.00
22	DA-22	21.91	0.00	21.91	10	1.5	7.27	6.13%	15.18	3.64	42.39%	0.53	24.4%	29.98	51.8%	11.36	10.56
23	DA-23	3.54	0.00	3.54	10	1.5	7.27	6.13%	7.66	1.84	42.39%	0.86	38.3%	10.63	99.4%	3.52	0.02
24	DA-24	12.15	0.00	12.15	10	1.5	7.27	1.82%	15.28	3.67	42.39%	0.52	24.2%	16.32	81.9%	9.95	2.20

2024-1-SI

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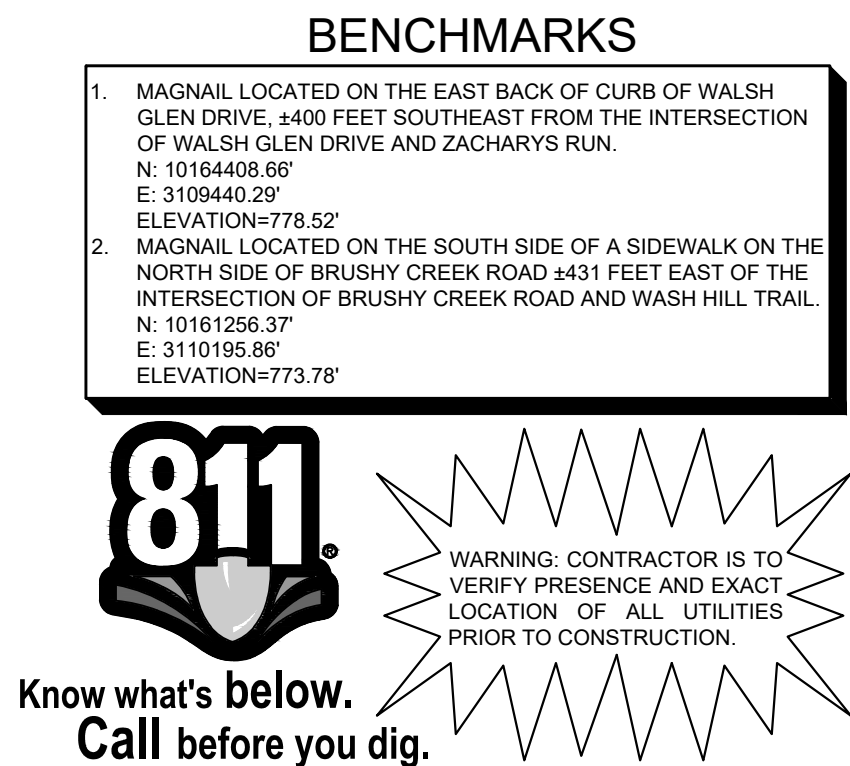


PROFILE SCALE
1" = 40' HORIZONTAL
1" = 4' VERTICAL

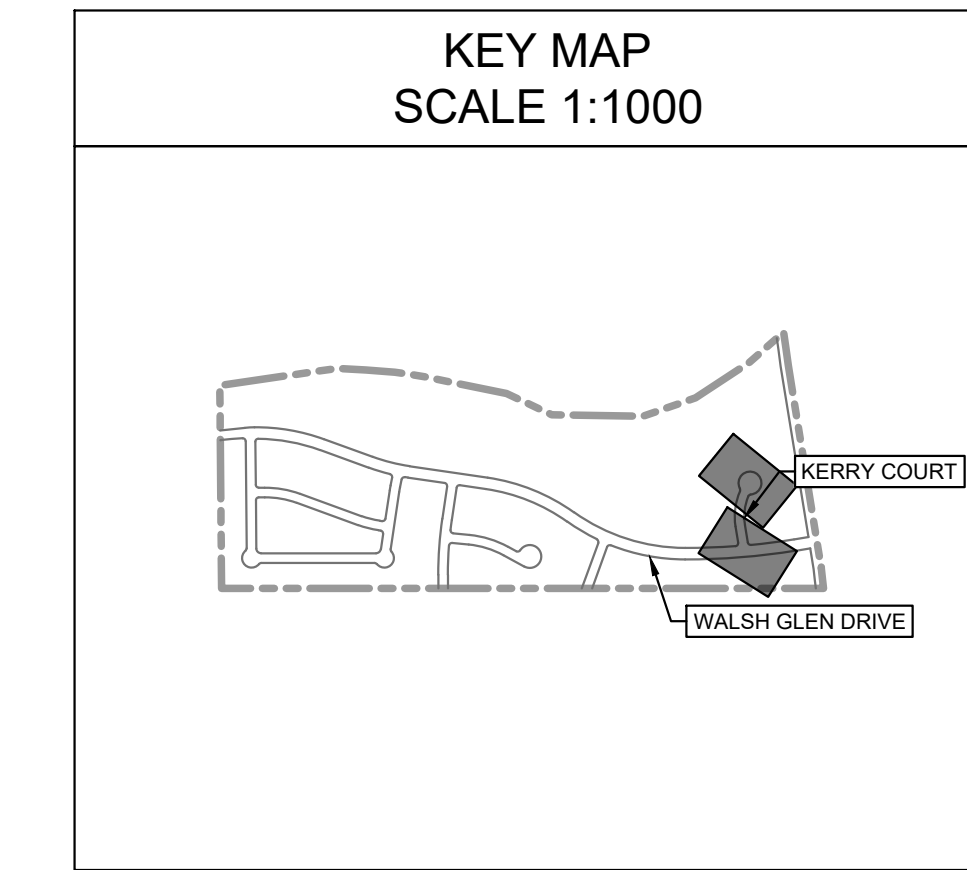
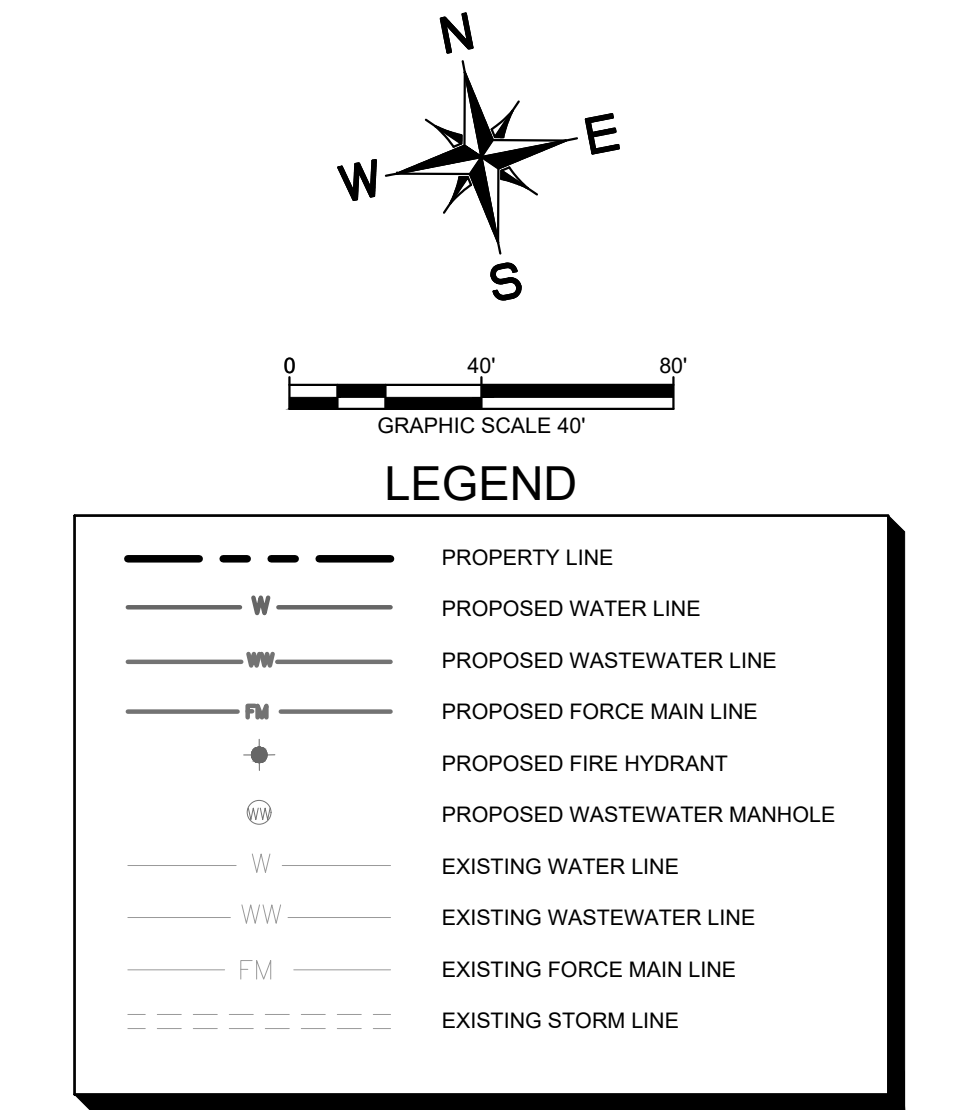
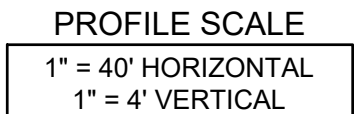
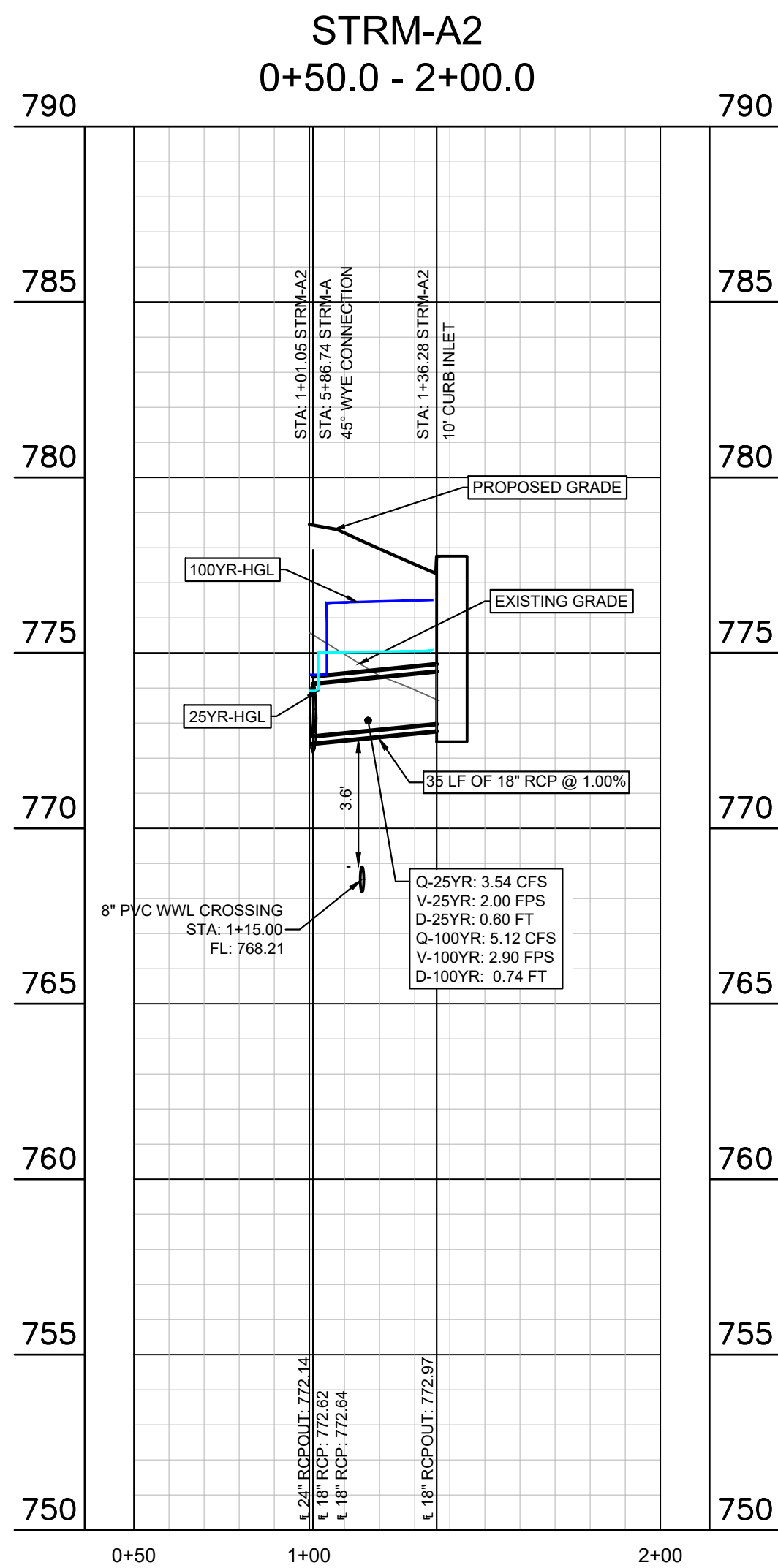
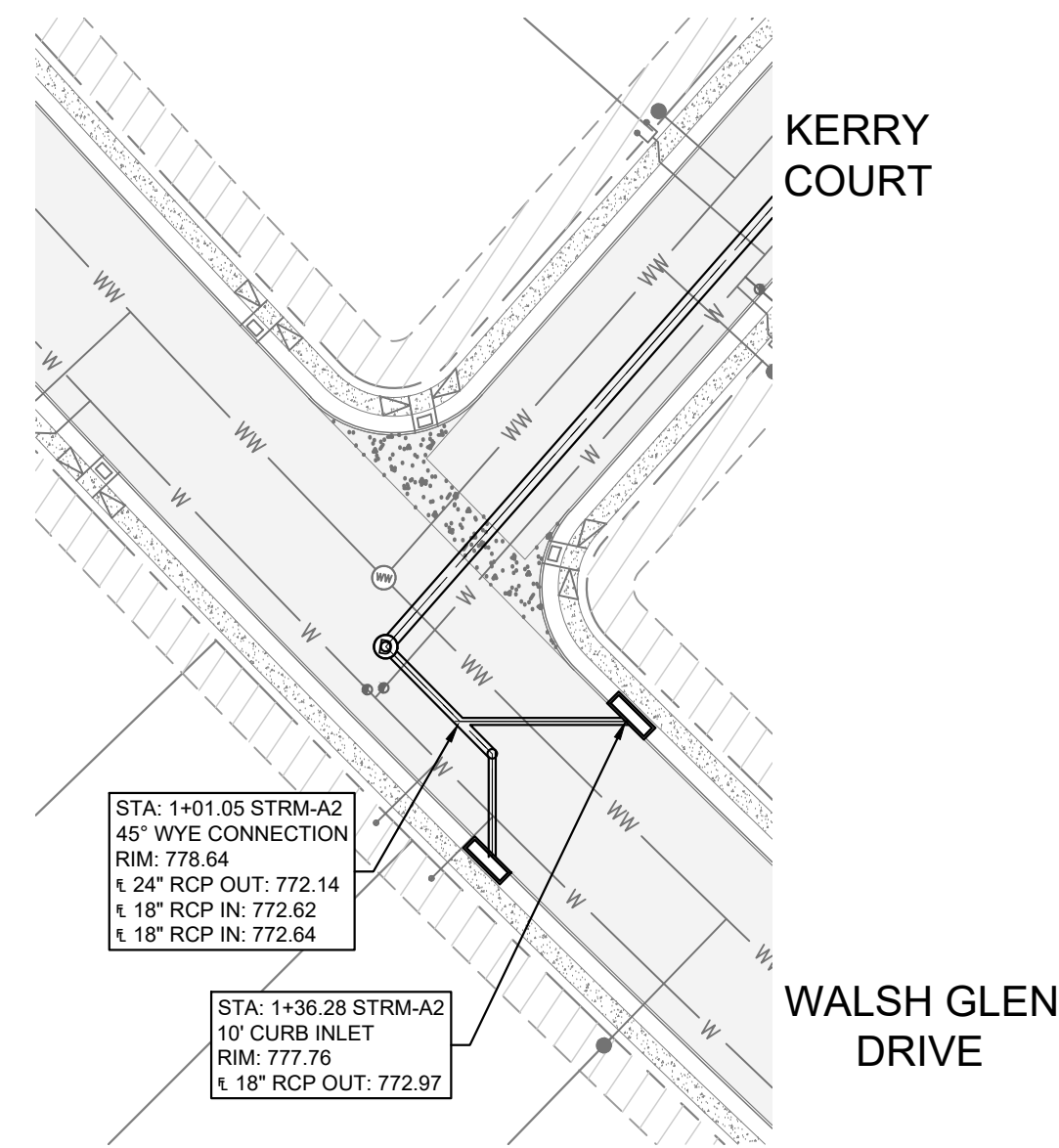
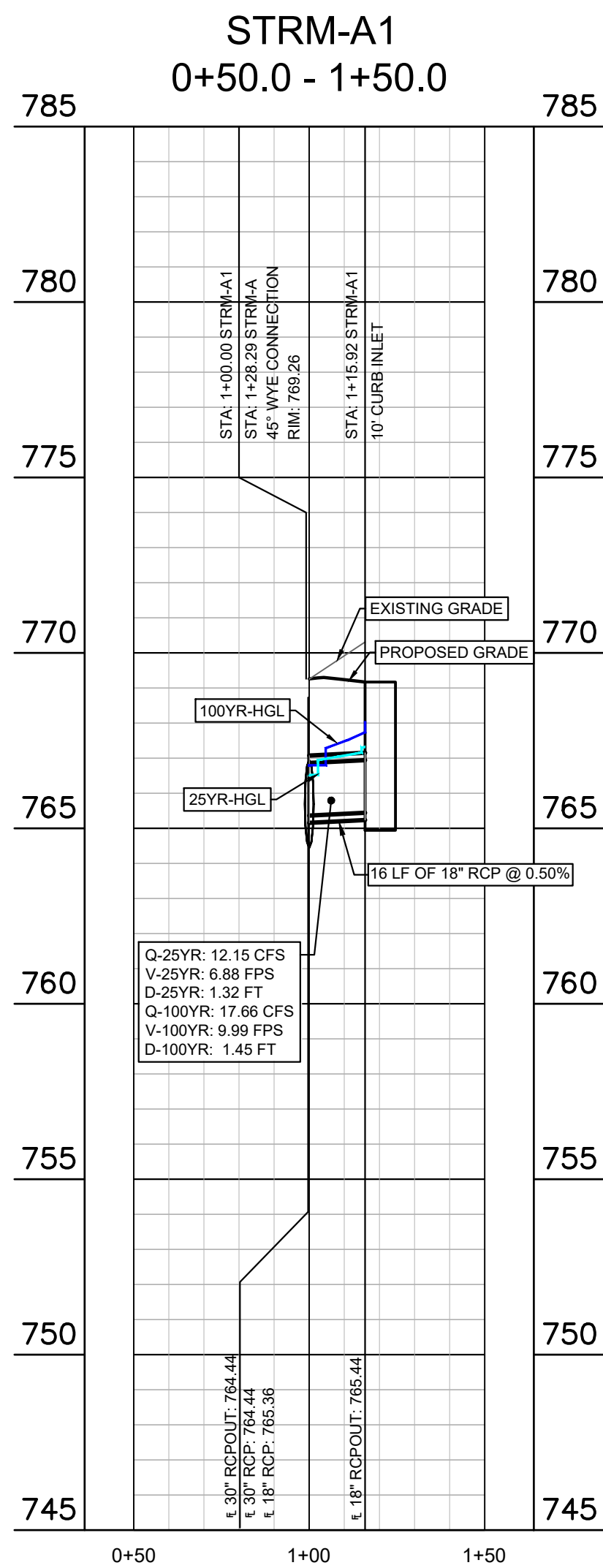
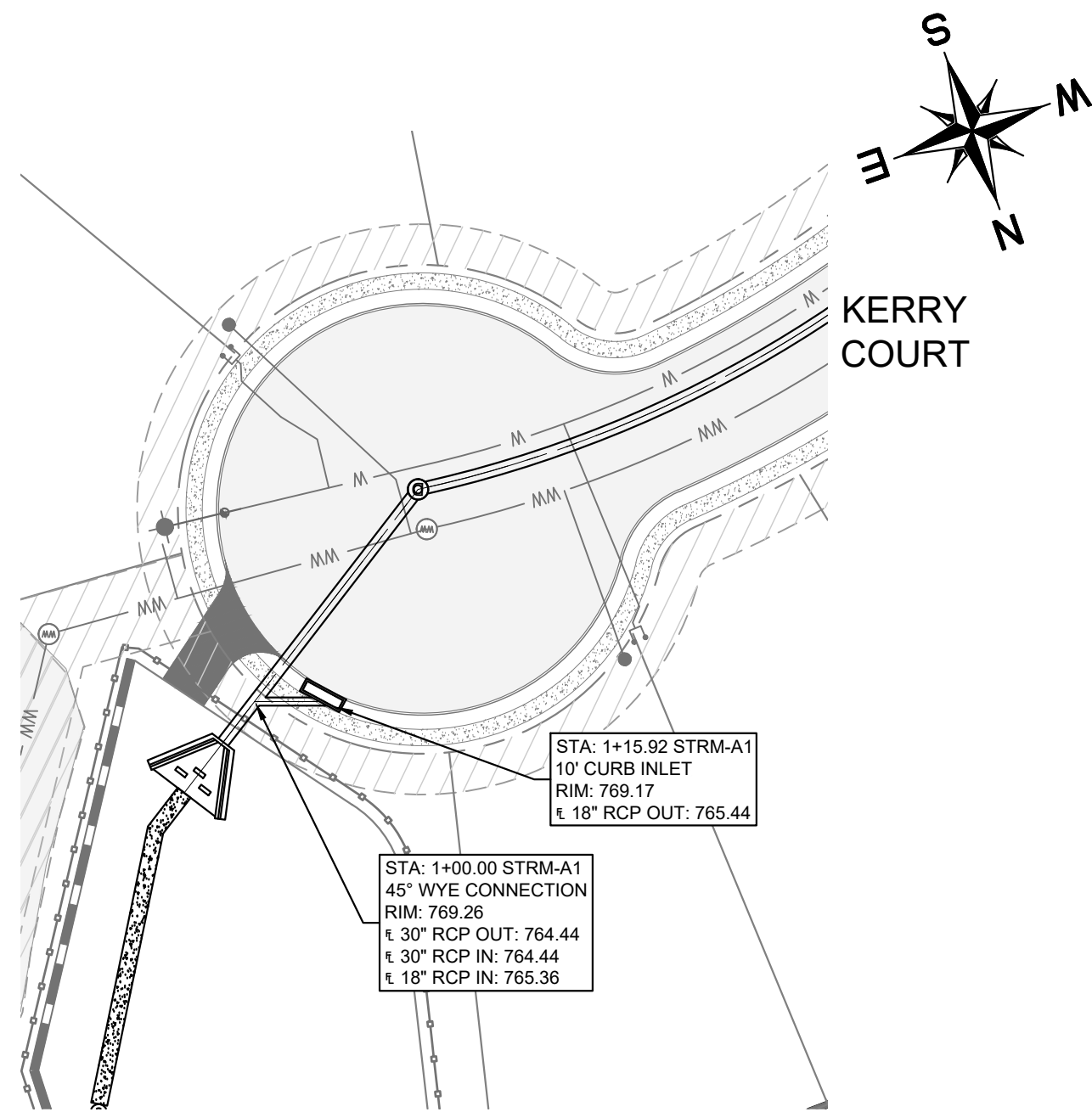


NOTES:

1. ALL MANHOLE COVERS SHALL READ "CITY OF CEDAR PARK"

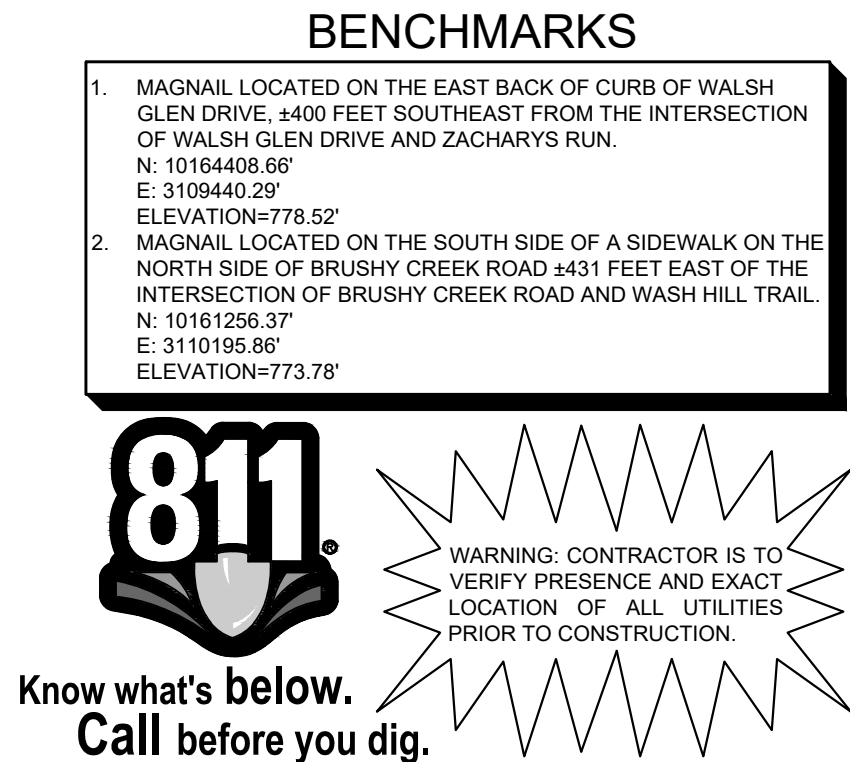


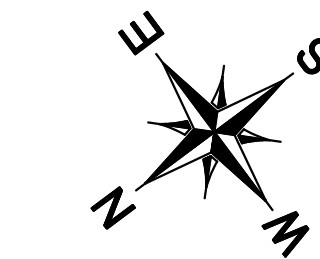
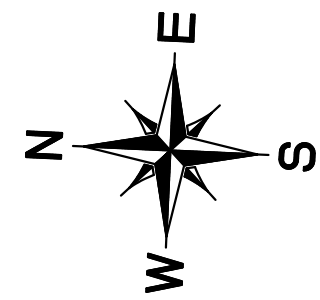
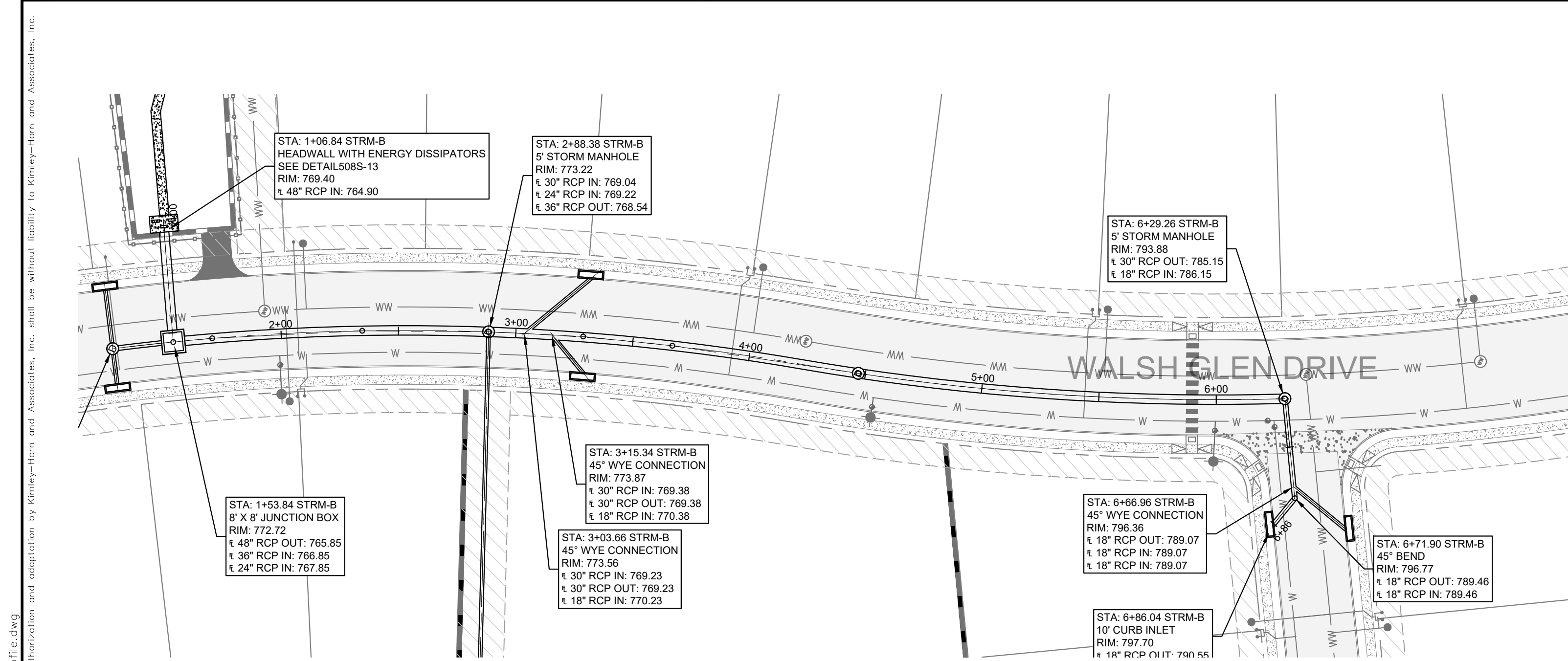
<p>WALSH TRAILS SECTION 5 & 6 CITY OF CEDAR PARK WILLIAMSON COUNTY, TEXAS</p>	<p>STORM P&P - LINE A</p>	<p>SHEET NUMBER 29 OF 89</p>		<p>Kimley»»Horn 5301 SOUTHWEST PARKWAY, BUILDING 2, SUITE 100 DALLAS, TEXAS 75244 PHONE: 214.636.5737 WWW.KIMLEY-HORN.COM © 2024 KIMLEY-HORN AND ASSOCIATES, INC. TBE Firm No. 928</p>	No.	REVISIONS	DATE	BY
<p>KHA PROJECT 069285504</p>			<p>DATE JUNE 2024</p>	<p>SCALE: AS SHOWN</p>	<p>DESIGNED BY: DS</p>	<p>DRAWN BY: AE/DB</p>	<p>CHECKED BY: BG</p>	
			<p>07/09/2024</p>					



NOTES:

1. ALL MANHOLE COVERS SHALL READ "CITY OF CEDAR PARK"



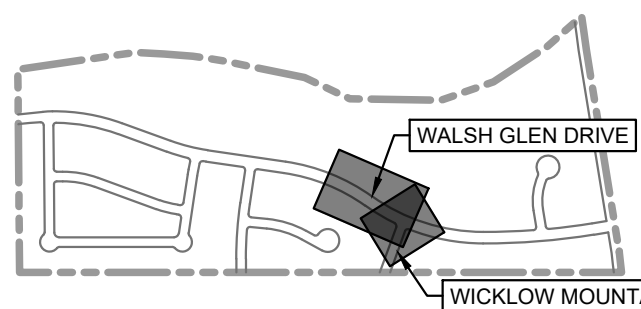


GRAPHIC SCALE 40'

LEGEND

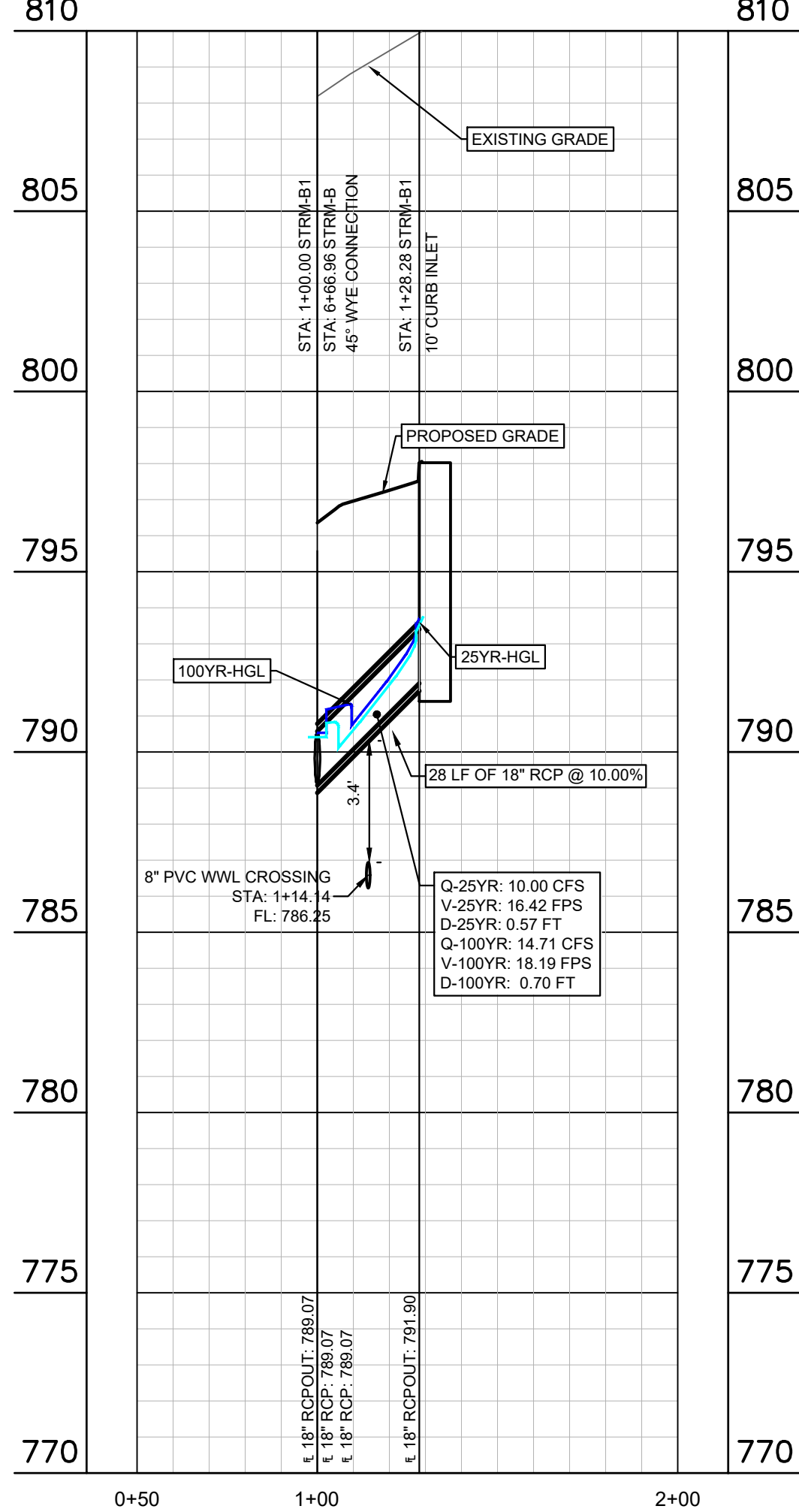
---	PROPERTY LINE
W	PROPOSED WATER LINE
WW	PROPOSED WASTEWATER LINE
FM	PROPOSED FORCE MAIN LINE
•	PROPOSED FIRE HYDRANT
⊙	PROPOSED WASTEWATER MANHOLE
W	EXISTING WATER LINE
WW	EXISTING WASTEWATER LINE
FM	EXISTING FORCE MAIN LINE
---	EXISTING STORM LINE

KEY MAP SCALE 1:1000



PROFILE SCALE
1" = 40' HORIZONTAL
1" = 4' VERTICAL

STRM-B1 0+50.0 - 2+00.0



BENCHMARKS

- MAGNAIL LOCATED ON THE EAST BACK OF CURB OF WALSH GLEN DRIVE, 4400 FEET SOUTHEAST FROM THE INTERSECTION OF WALSH GLEN DRIVE AND ZACHARYS RUN.
N: 10164408.66'
E: 3109440.29'
ELEVATION=778.52'
- MAGNAIL LOCATED ON THE SOUTH SIDE OF A SIDEWALK ON THE NORTH SIDE OF BRUSHY CREEK ROAD 3431 FEET EAST OF THE INTERSECTION OF BRUSHY CREEK ROAD AND WASH HILL TRAIL.
N: 10161256.37'
E: 3110195.86'
ELEVATION=773.78'



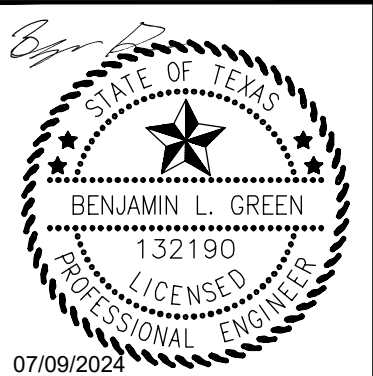
WARNING: CONTRACTOR IS TO VERIFY PRESENCE AND EXACT LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.

Plotted By: Smith, Dallas Date: June 23, 2024, 02:41:20pm File Path: \\sauflier01\Project03\TS_SAU_Data\SAU_Civil\069285504 - Walsh Brushy Creek\Cad\PH1\PlanSheets\C - Storm Plan & Profile.dwg

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No.	REVISIONS	DATE	BY

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DALLAS, TEXAS 75246-2237
WWW.KIMLEY-HORN.COM
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TBP# Firm No. 928



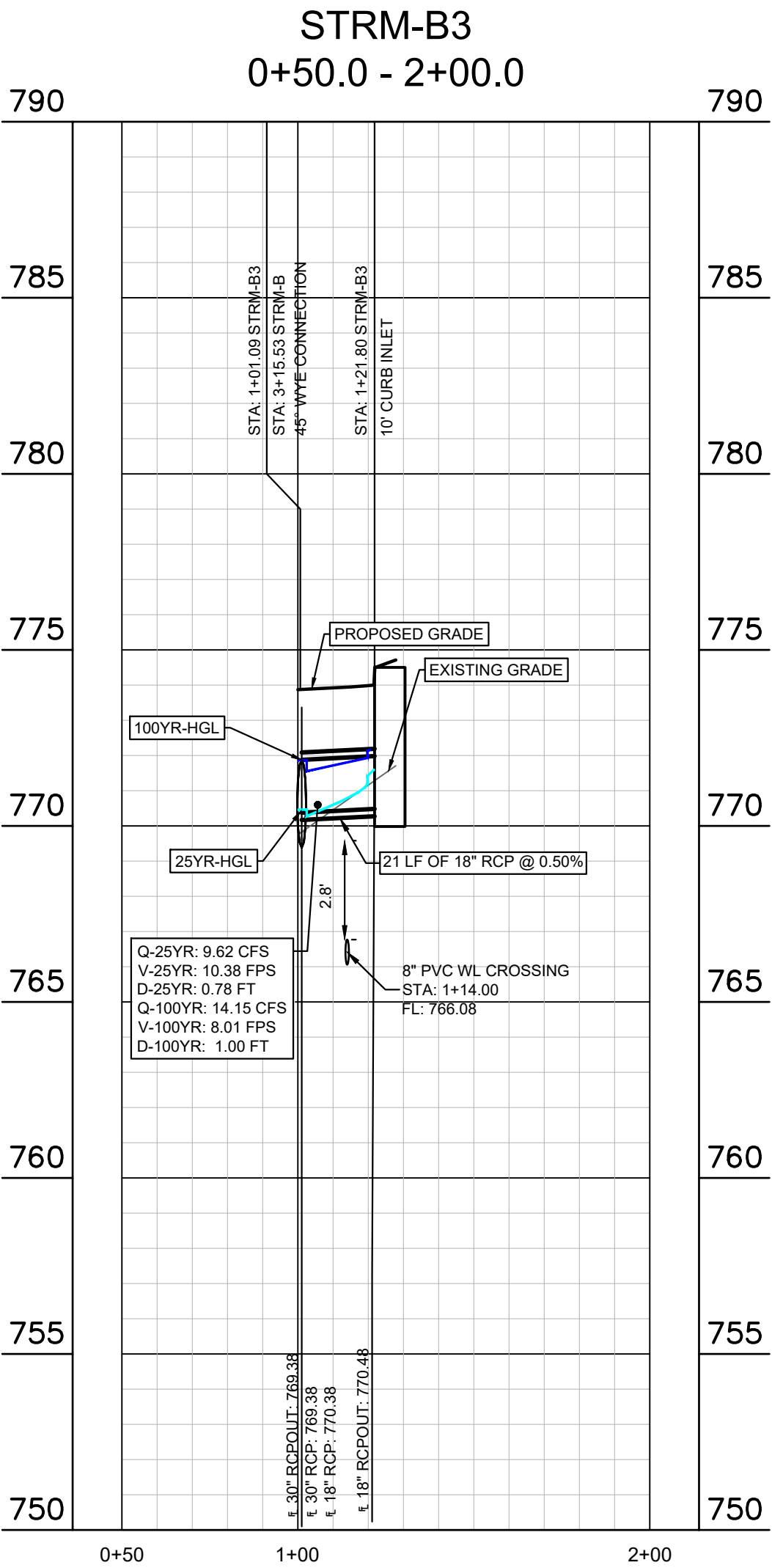
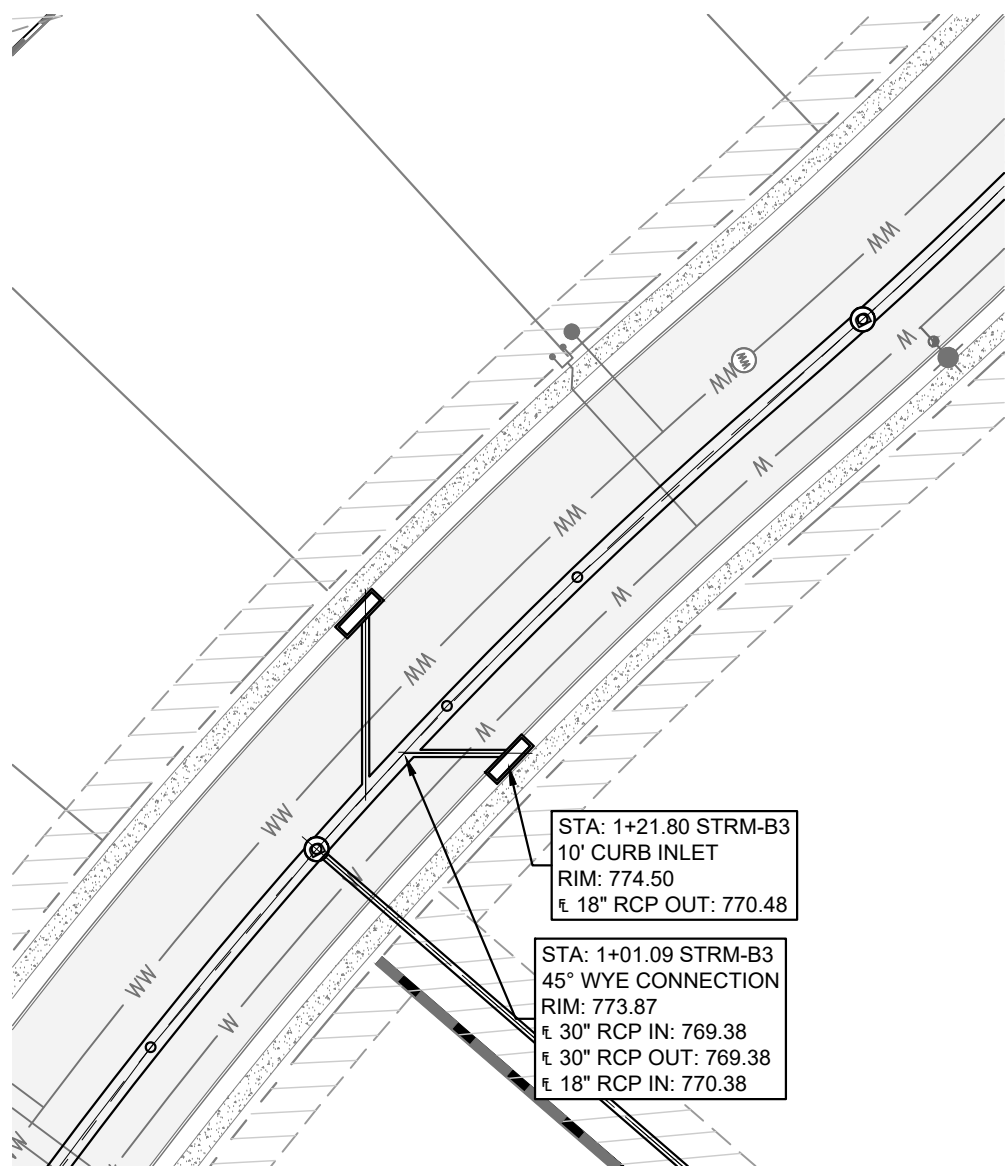
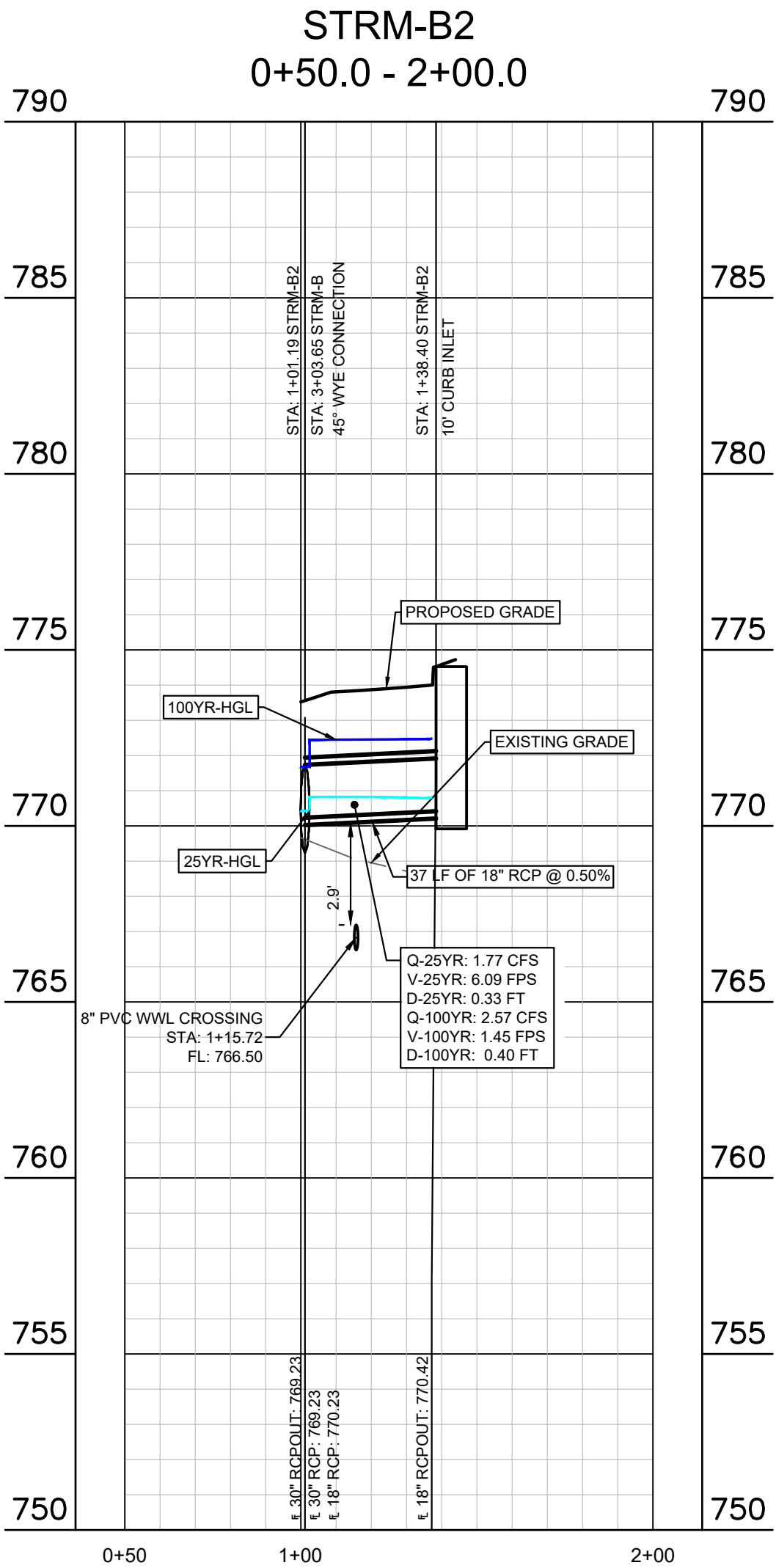
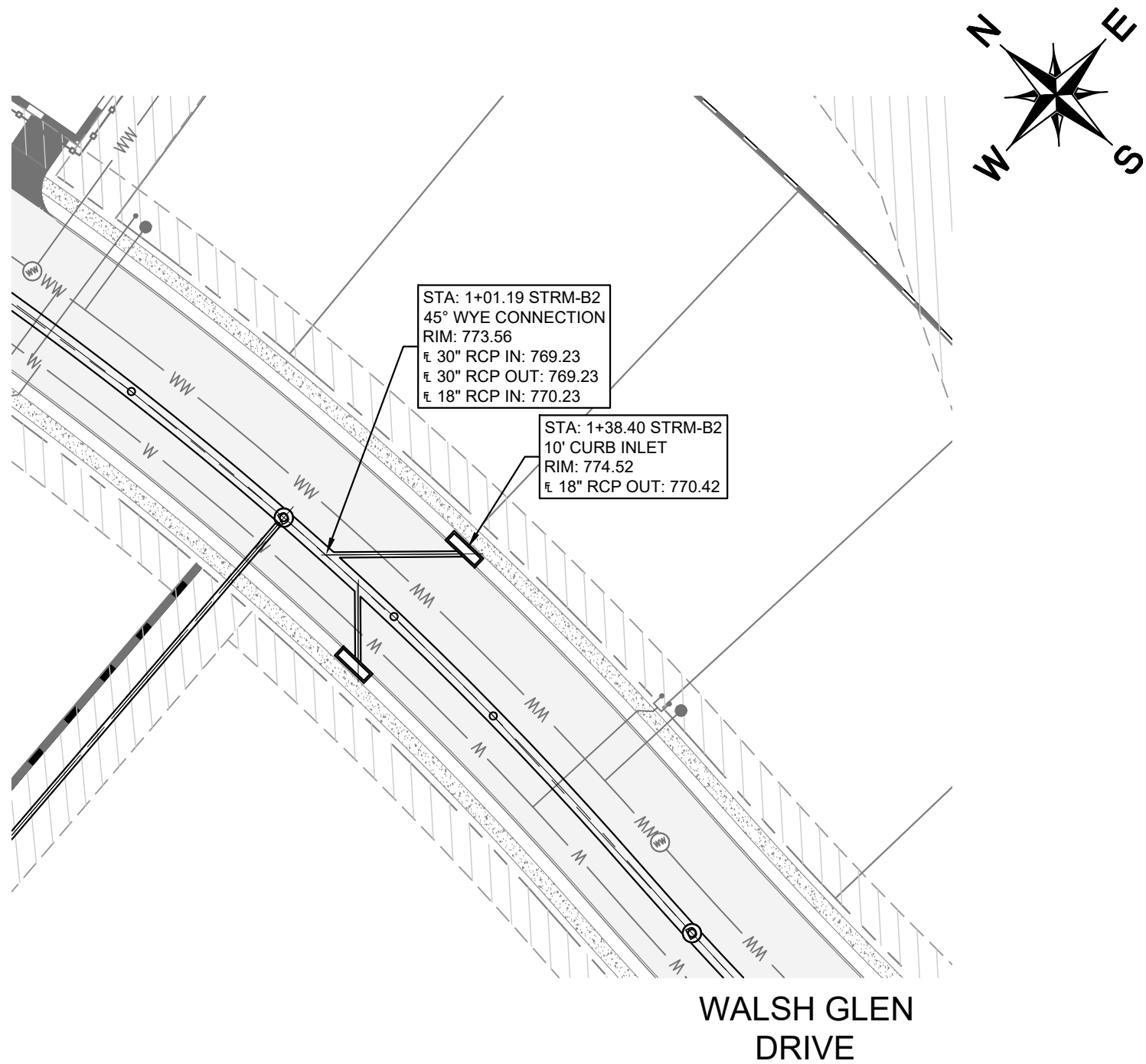
KHA PROJECT 069285504	DATE JUNE 2024	SCALE: AS SHOWN	DESIGNED BY: DS	DRAWN BY: AE/DB	CHECKED BY: BG
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STORM P&P - LINES B B1

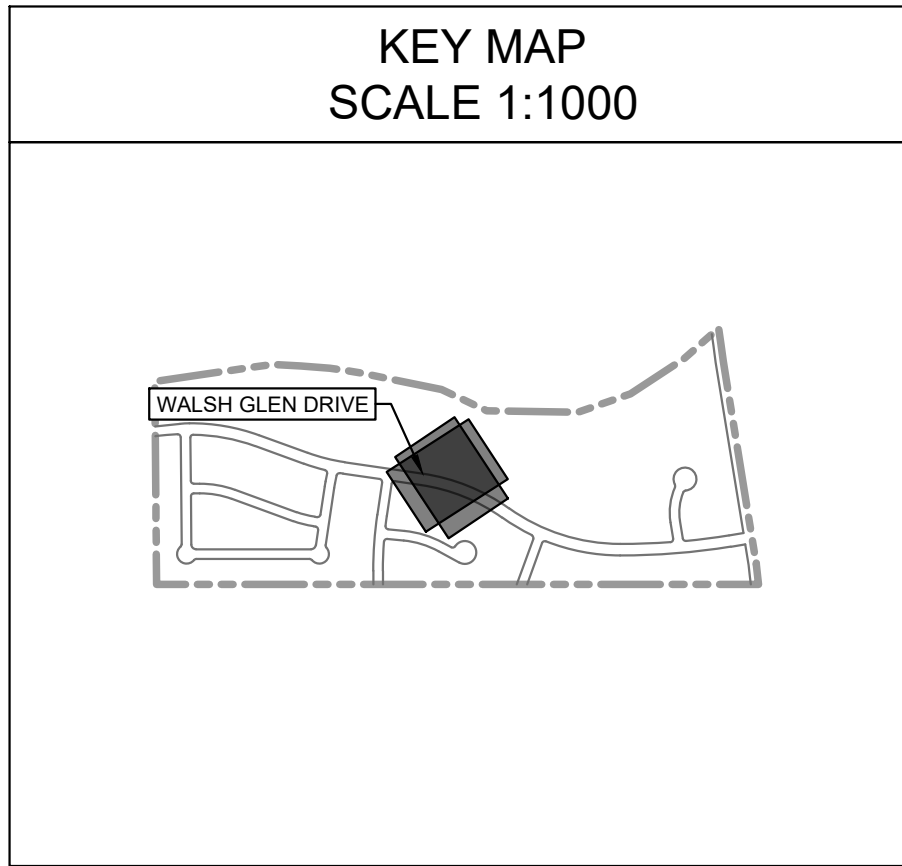
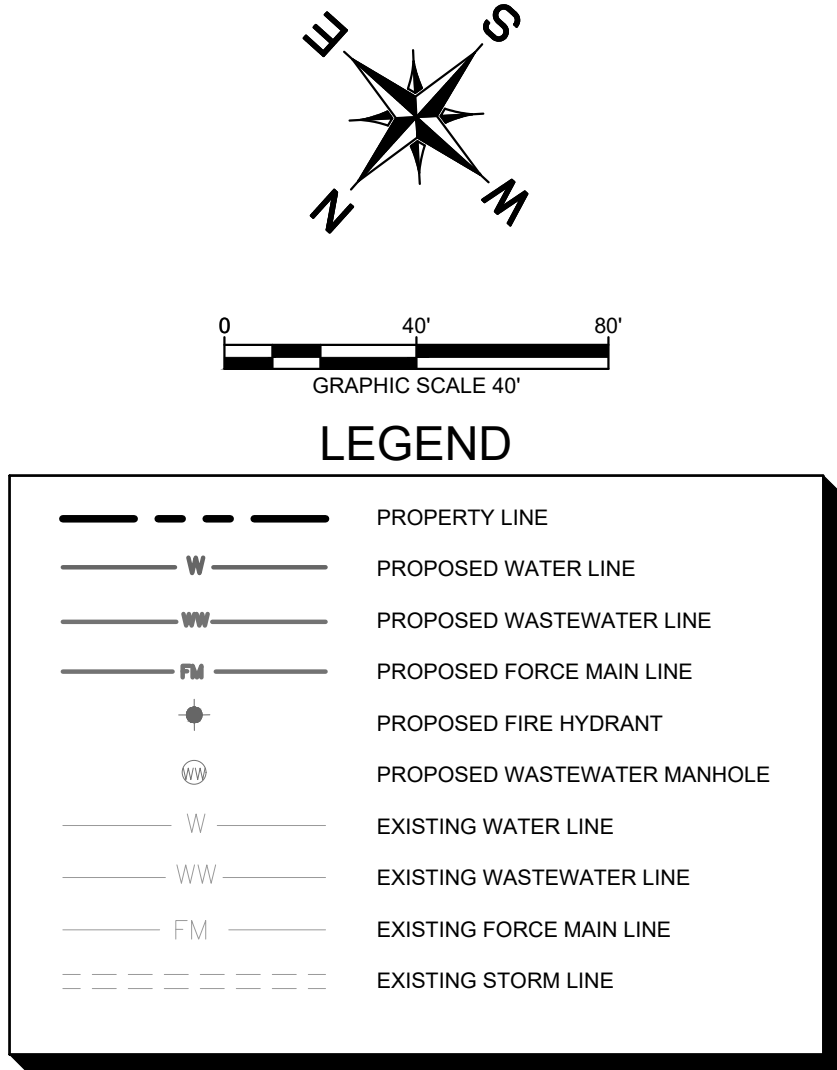
WALSH TRAILS SECTION 5 & 6 CITY OF CEDAR PARK WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
31 OF 89

2024-1-SI



PROFILE SCALE
1" = 40' HORIZONTAL
1" = 4' VERTICAL



- NOTES:
- ALL MANHOLE COVERS SHALL READ "CITY OF CEDAR PARK"

- BENCHMARKS
- MAGNAIL LOCATED ON THE EAST BACK OF CURB OF WALSH GLEN DRIVE, 4400 FEET SOUTHEAST FROM THE INTERSECTION OF WALSH GLEN DRIVE AND ZACHARYS RUN.
N: 10164408.66'
E: 3108440.29'
ELEVATION=778.52'
 - MAGNAIL LOCATED ON THE SOUTH SIDE OF A SIDEWALK ON THE NORTH SIDE OF BRUSHY CREEK ROAD 431 FEET EAST OF THE INTERSECTION OF BRUSHY CREEK ROAD AND WASH HILL TRAIL.
N: 10161256.37'
E: 3110195.86'
ELEVATION=773.78'



WARNING: CONTRACTOR IS TO VERIFY PRESENCE AND EXACT LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.

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STATE OF TEXAS
BENJAMIN L. GREEN
132190
LICENSED PROFESSIONAL ENGINEER
07/09/2024

KHA PROJECT 069285504
DATE JUNE 2024
SCALE: AS SHOWN
DESIGNED BY: DS
DRAWN BY: AE/DB
CHECKED BY: BG

STORM P&P -
LINES B2 B3

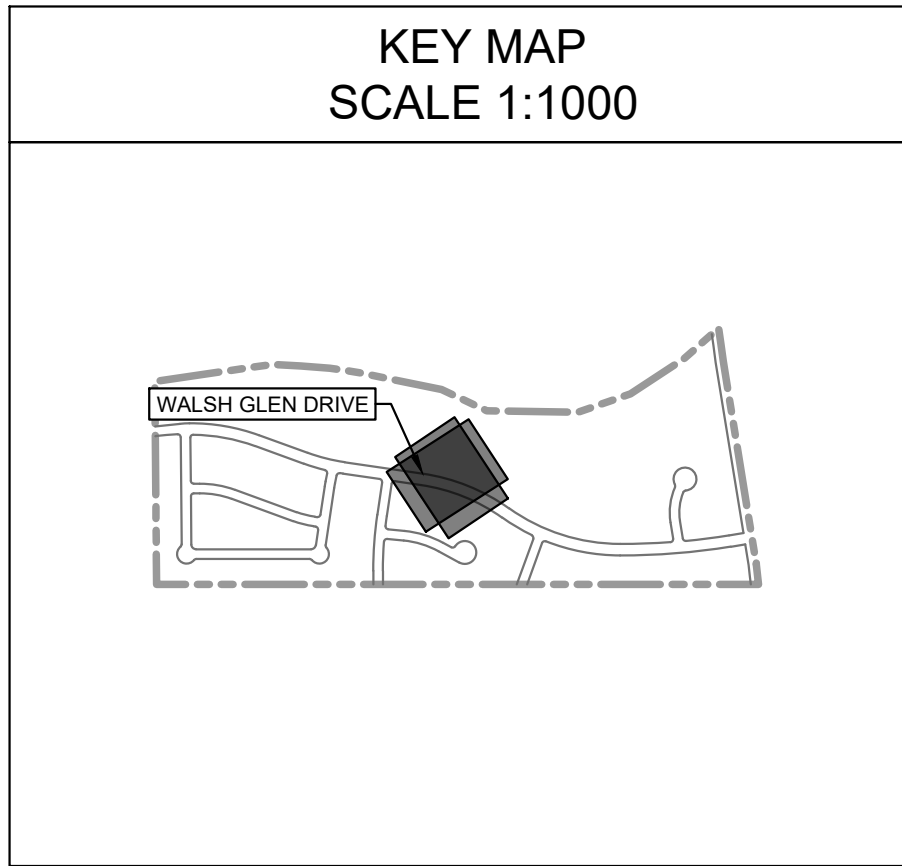
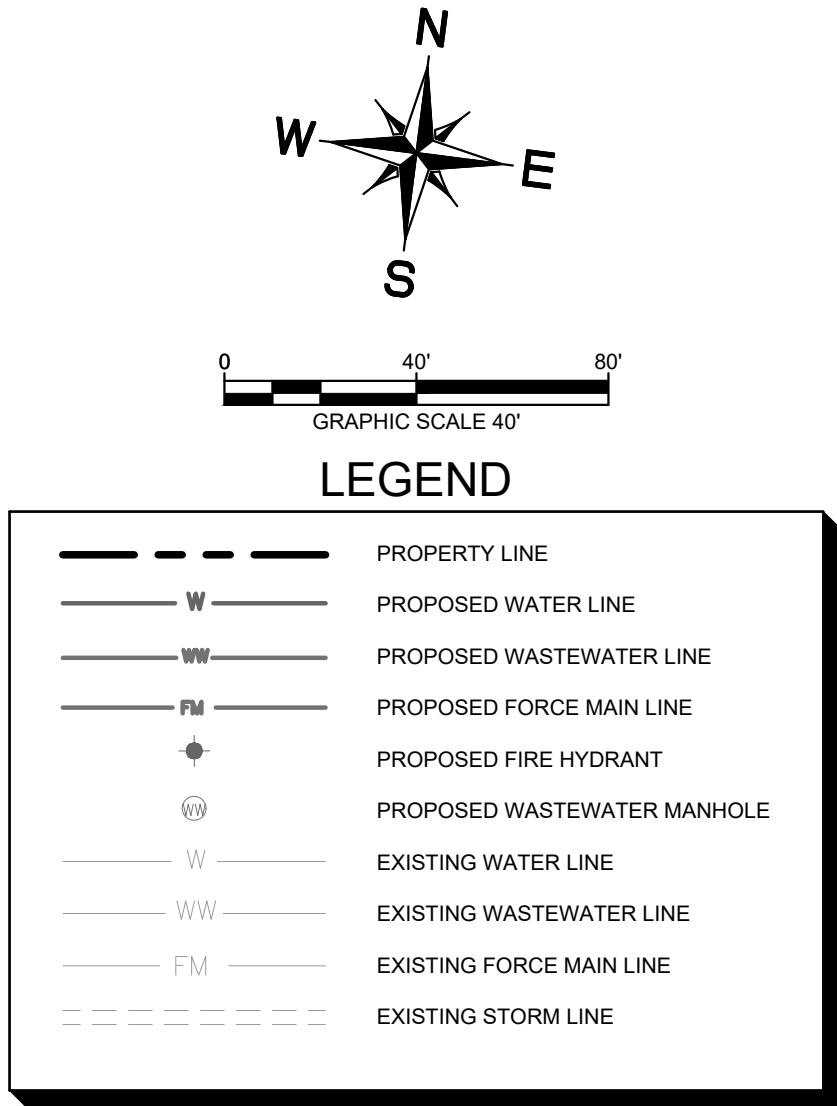
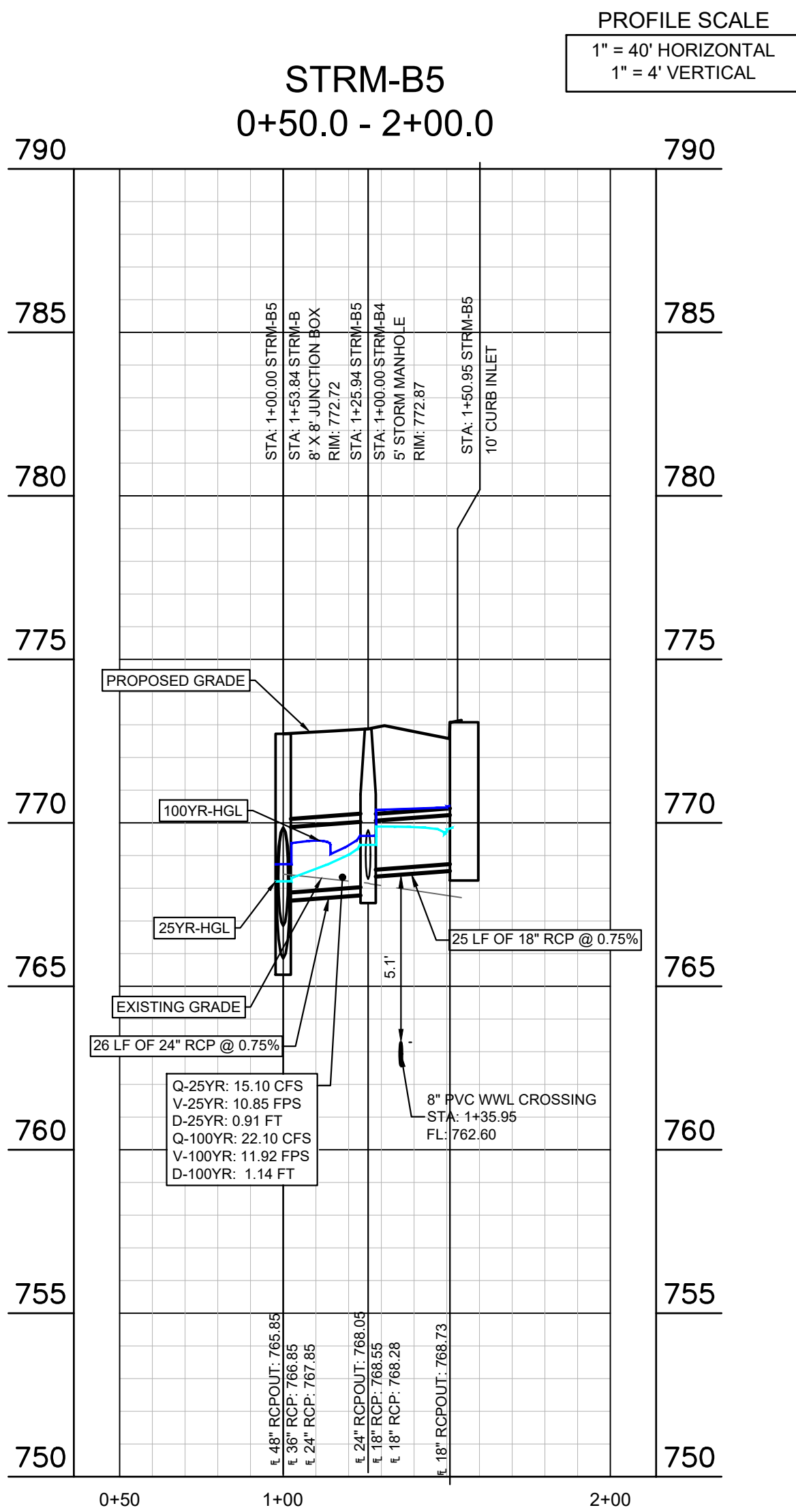
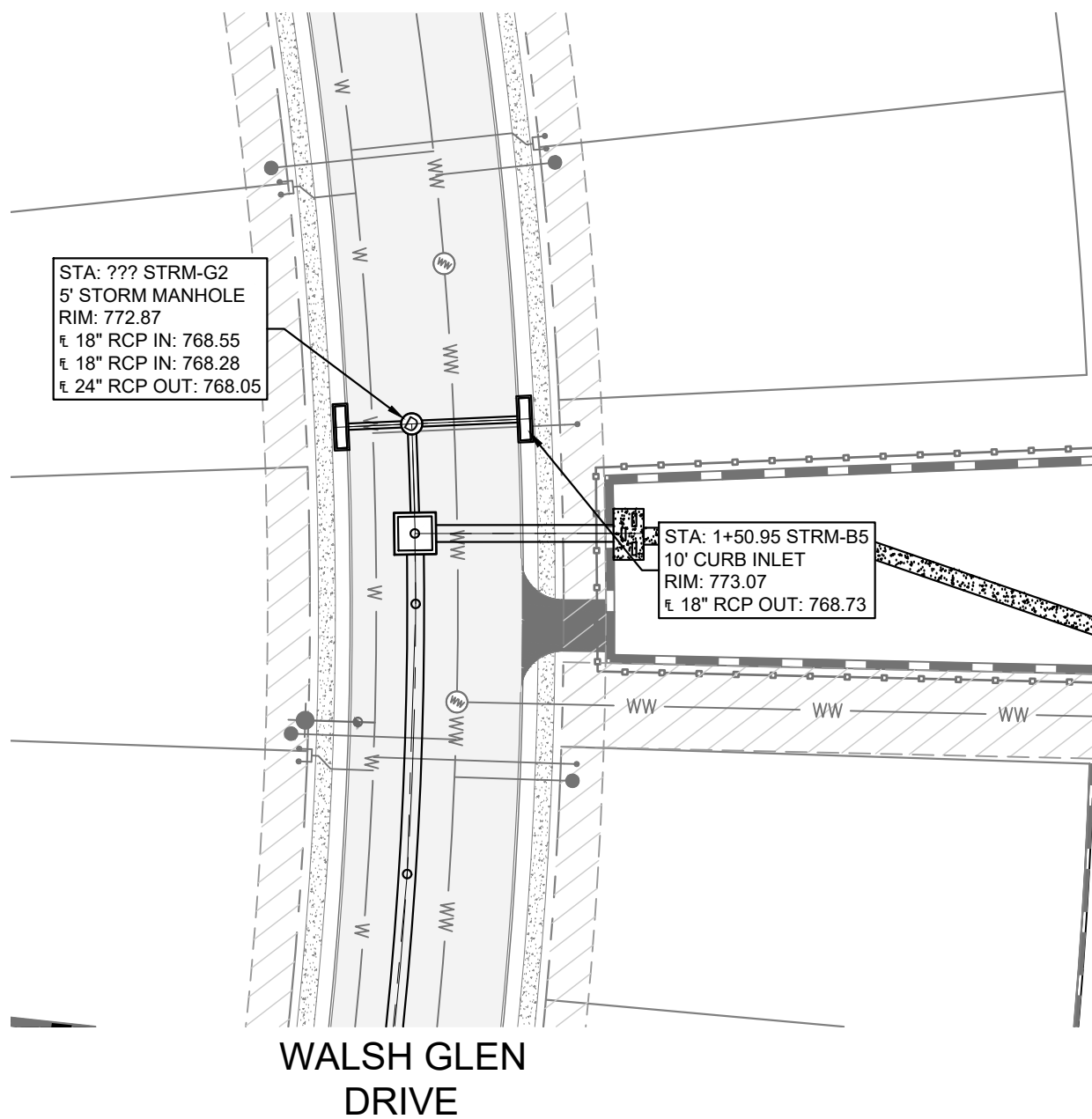
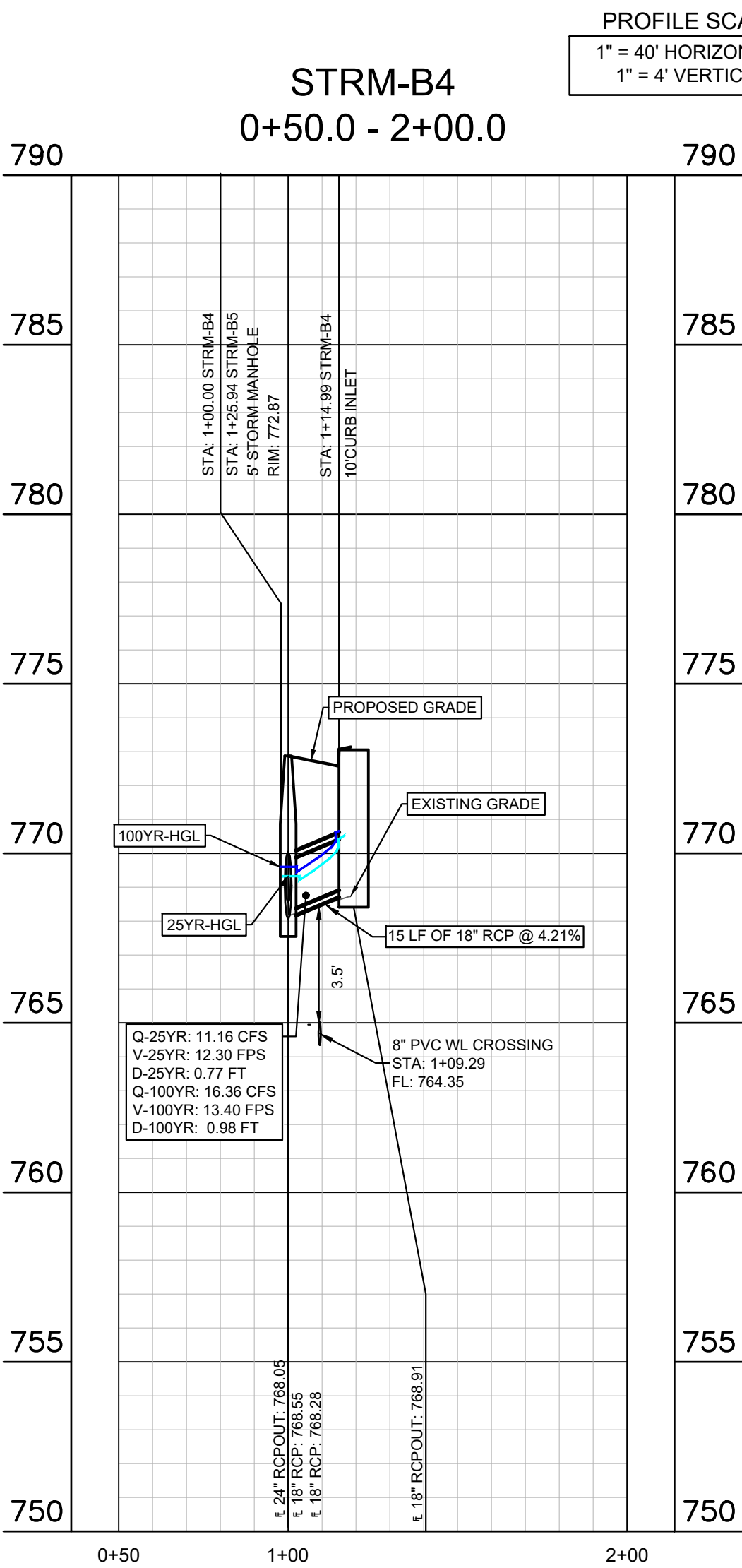
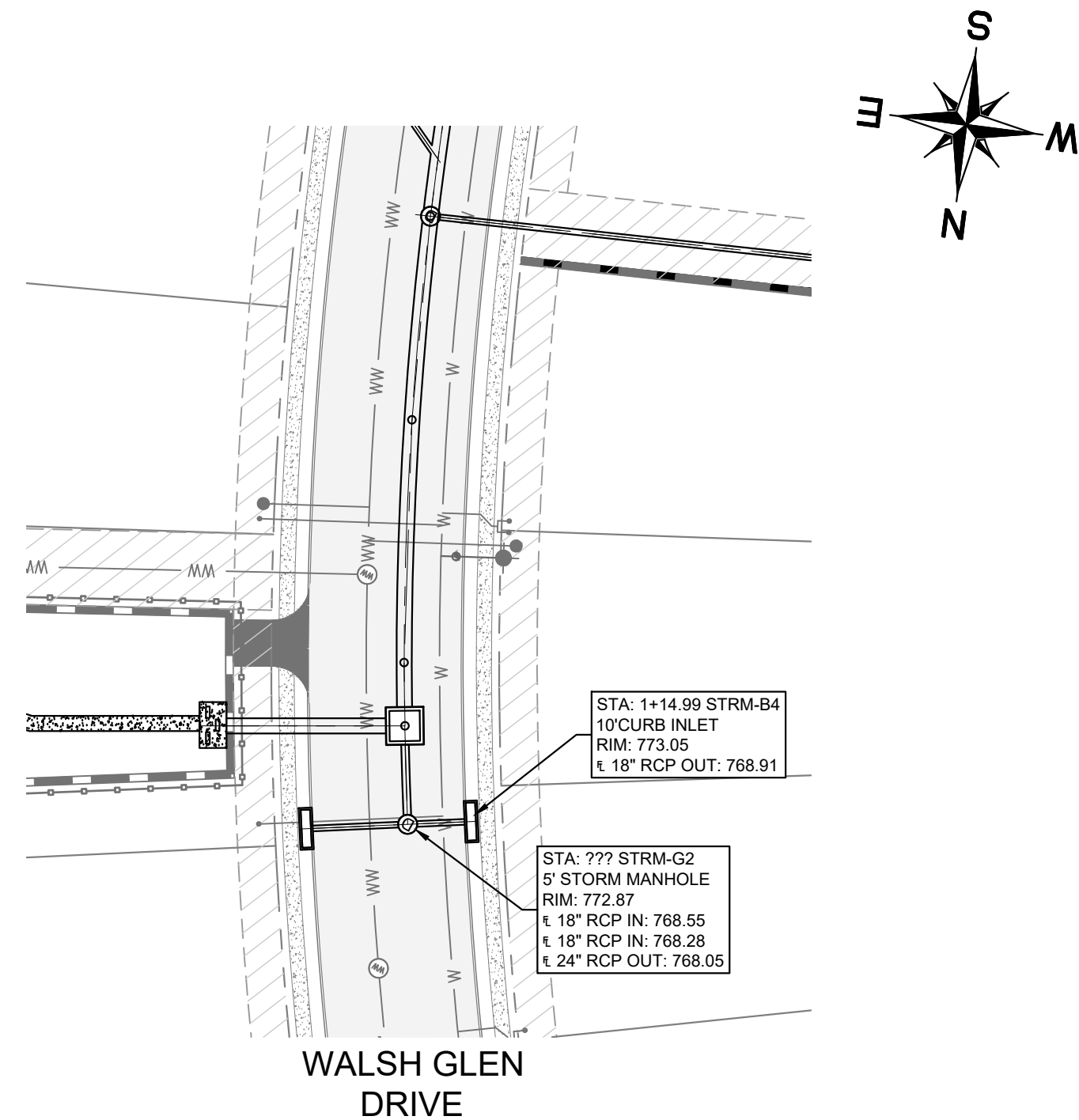
WALSH TRAILS
SECTION 5 & 6
CITY OF CEDAR PARK
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
32 OF 89

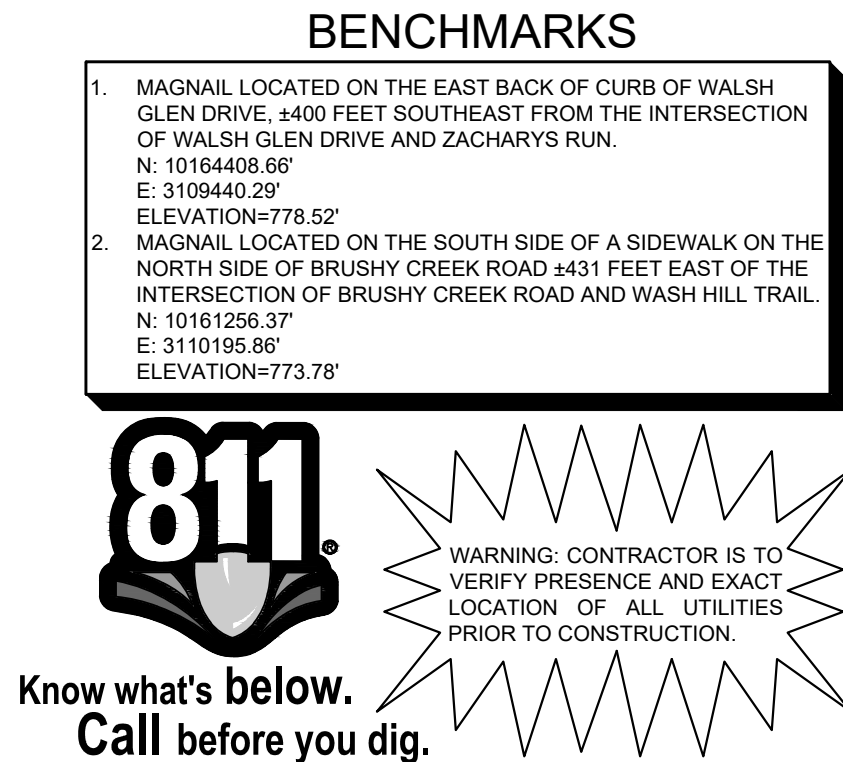
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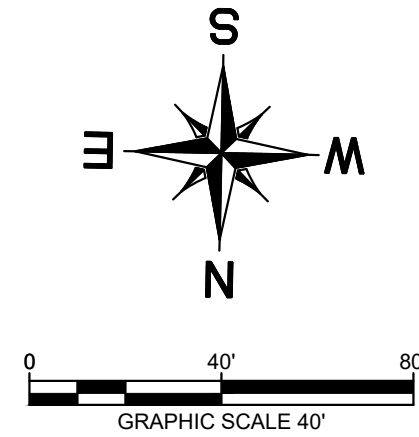
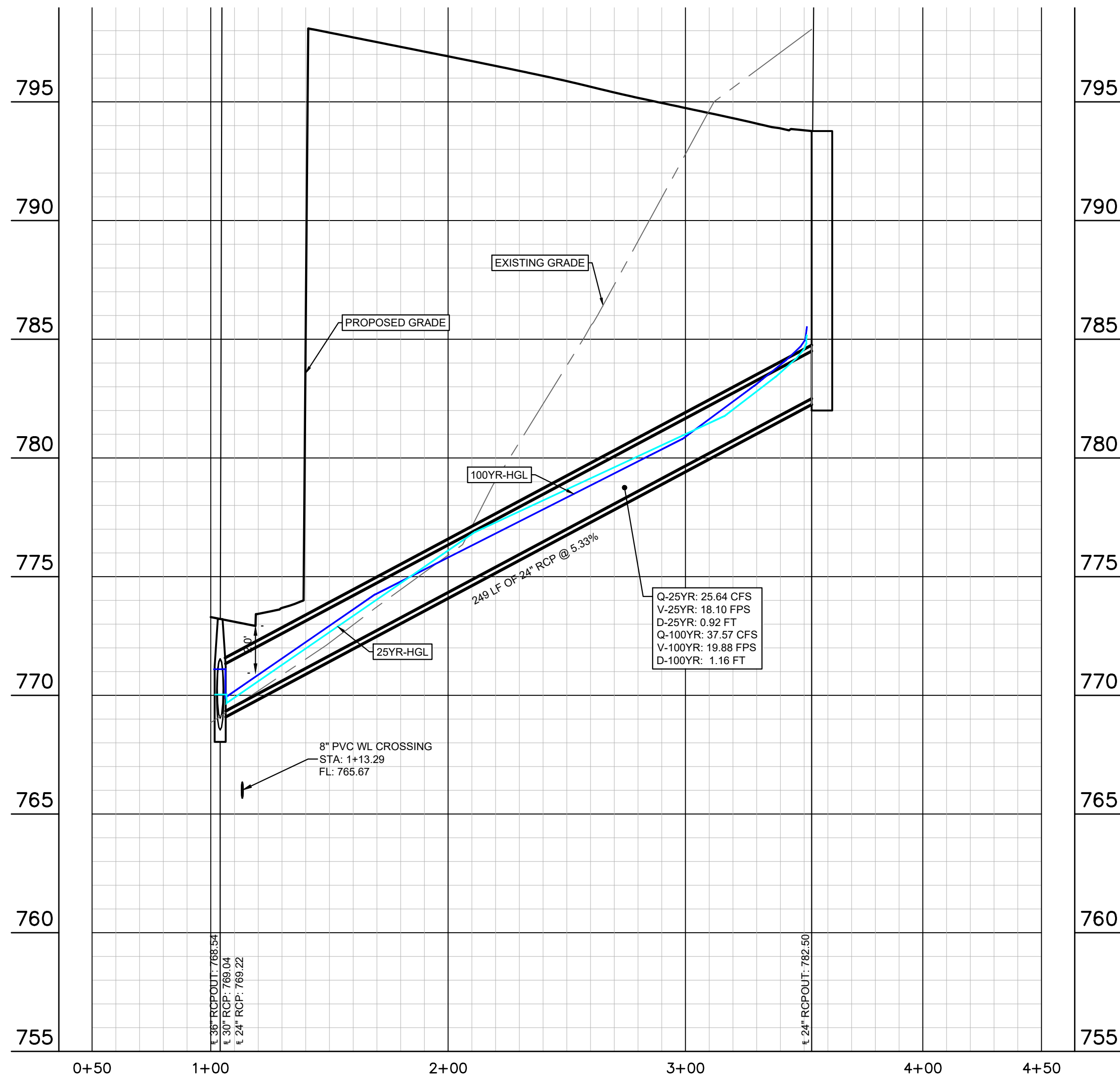
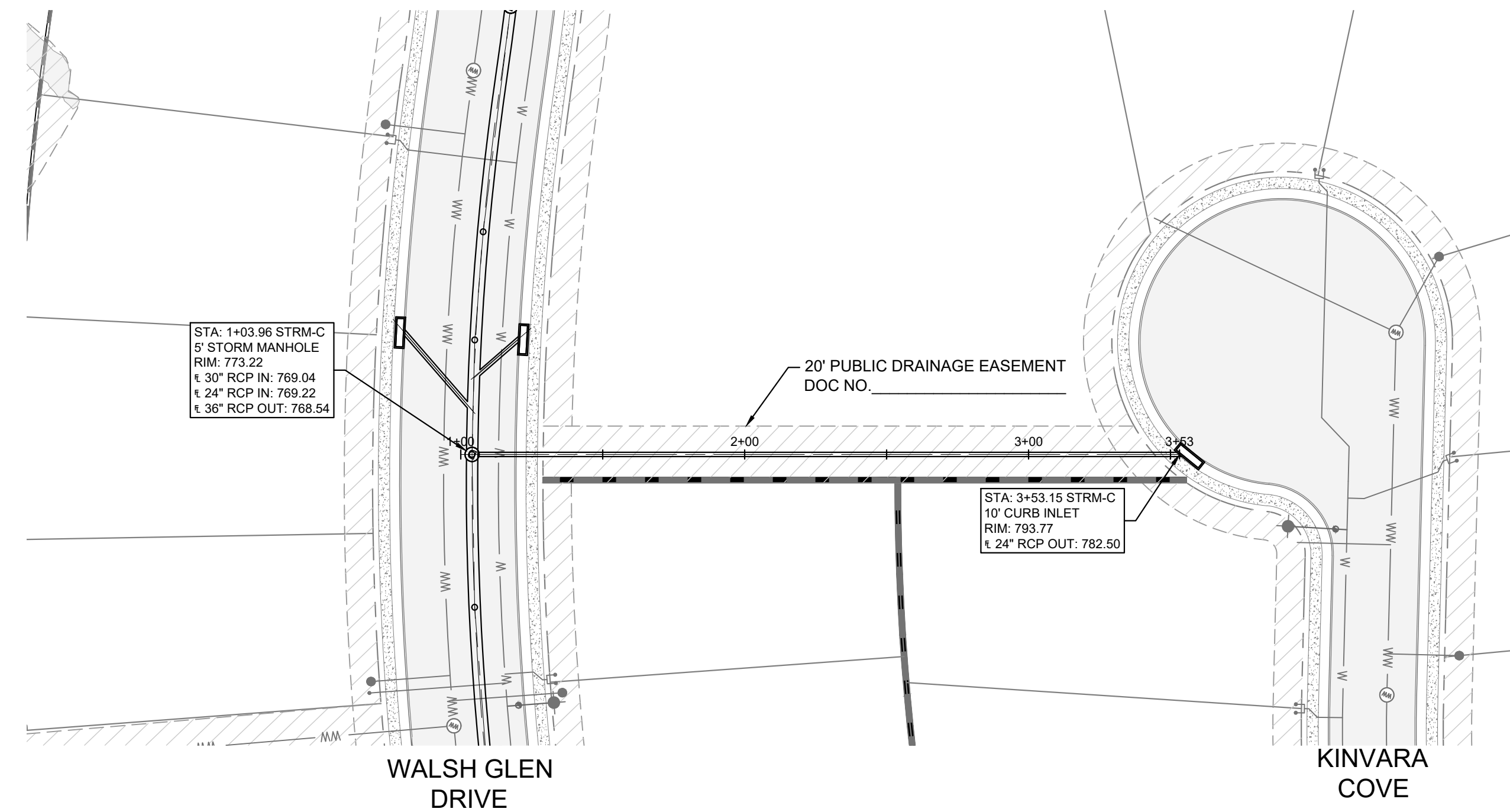
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- NOTES:
- ALL MANHOLE COVERS SHALL READ "CITY OF CEDAR PARK"



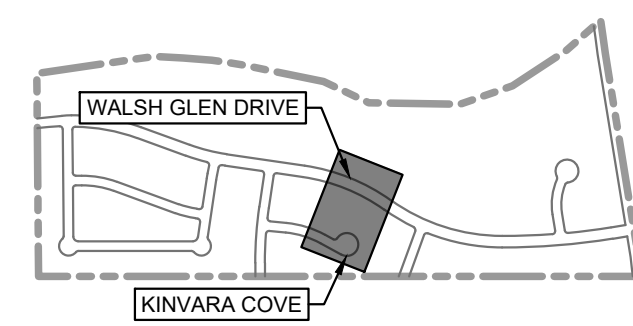
KIMLEY-HORN		5301 SOUTHWEST PARKWAY, BUILDING 2, SUITE 100 DALLAS, TEXAS 75246-2237 WWW.KIMLEY-HORN.COM © 2024 KIMLEY-HORN AND ASSOCIATES, INC. TPE Firm No. 928	
STATE OF TEXAS BENJAMIN L. GREEN 132190 LICENSED PROFESSIONAL ENGINEER 07/09/2024		KHA PROJECT 069285504 DATE JUNE 2024 SCALE: AS SHOWN DESIGNED BY: DS DRAWN BY: AE/DB CHECKED BY: BG	
WALSH TRAILS SECTION 5 & 6 CITY OF CEDAR PARK WILLIAMSON COUNTY, TEXAS		STORM P&P - LINES B4 B5	
SHEET NUMBER 33 OF 89		2024-1-SI	



LEGEND

	PROPERTY LINE
	PROPOSED WATER LINE
	PROPOSED WASTEWATER LINE
	PROPOSED FORCE MAIN LINE
	PROPOSED FIRE HYDRANT
	PROPOSED WASTEWATER MANHOLE
	EXISTING WATER LINE
	EXISTING WASTEWATER LINE
	EXISTING FORCE MAIN LINE
	EXISTING STORM LINE

KEY MAP
SCALE 1:1000



PROFILE SCALE

1" = 40' HORIZONTAL
1" = 4' VERTICAL

1" = 4' VERTICAL

NOTES:

1. ALL MANHOLE COVERS SHALL READ "CITY OF CEDAR PARK"

BENCHMARKS

1. MAGNAIL LOCATED ON THE EAST BACK OF CURB OF WALSH GLEN DRIVE, +100 FEET SOUTHEAST FROM THE INTERSECTION OF WALSH GLEN DRIVE AND ZACHARYS RUN.
N: 10164408.66'
E: 3109440.23'
ELEVATION=778.52'
2. MAGNAIL LOCATED ON THE SOUTH SIDE OF A SIDEWALK ON THE NORTH SIDE OF BRUSHY CREEK ROAD +431 FEET EAST OF THE INTERSECTION OF BRUSHY CREEK ROAD AND WASH HILL TRAIL.
N: 10161256.37'
E: 3110195.86'
ELEVATION=773.78'



WARNING: CONTRACTOR IS TO
VERIFY PRESENCE AND EXACT
LOCATION OF ALL UTILITIES
PRIOR TO CONSTRUCTION.

**WALSH TRAILS
SECTION 5 & 6**
CITY OF CEDAR PARK
WILLIAMSON COUNTY, TEXAS

SECTION 5 & 6

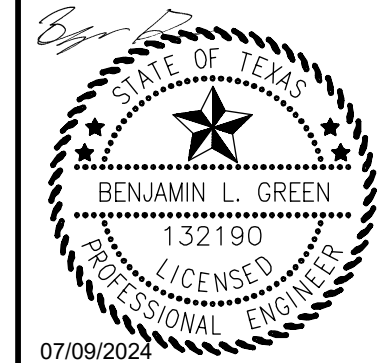
CITY OF CEDAR PARK
WILLIAMSON COUNTY, TEXAS

CITY OF CEDAR PARK
WILLIAMSON COUNTY, TEXAS

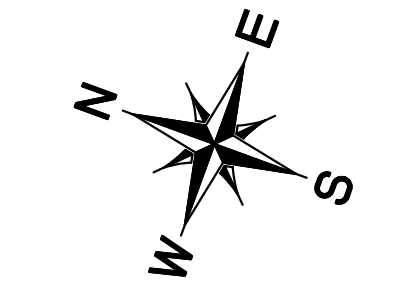
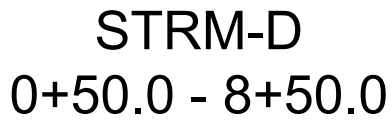
STORM P&P -
LINE C

LINE C

KHA PROJECT 069285504	DATE JUNE 2024	SCALE: AS SHOWN	DESIGNED BY: DS	DRAWN BY: AE/DB	CHECKED BY: BG
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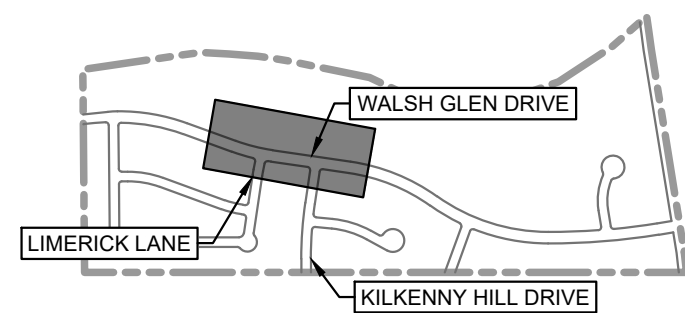
0 40' 80'

GRAPHIC SCALE 40'

LEGEND

	PROPERTY LINE
	PROPOSED WATER LINE
	PROPOSED WASTEWATER LINE
	PROPOSED FORCE MAIN LINE
	PROPOSED FIRE HYDRANT
	PROPOSED WASTEWATER MANHOLE
	EXISTING WATER LINE
	EXISTING WASTEWATER LINE
	EXISTING FORCE MAIN LINE
	EXISTING STORM LINE

KEY MAP
SCALE 1:1000



PROFILE SCALE

1" = 40' HORIZONTAL
1" = 4' VERTICAL

BENCHMARKS

1. MAGNOL LOCATED ON THE EAST BACK OF CURB OF WALSH GLEN DRIVE, ±400 FEET SOUTHEAST FROM THE INTERSECTION OF WALSH GLEN DRIVE AND ZACHARYS RUN.
N: 1016408.66°
E: 3109440.29°
ELEVATION=778.52'
2. MAGNOL LOCATED ON THE SOUTH SIDE OF A SIDEWALK ON THE NORTH SIDE OF BRUSHY CREEK ROAD ±431 FEET EAST OF THE INTERSECTION OF BRUSHY CREEK ROAD AND WASH HILL TRAIL.
N: 1016150.37°
E: 3110195.98°
ELEVATION=773.78'



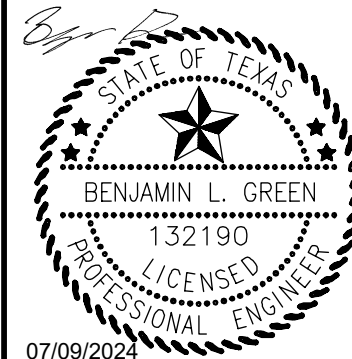
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WARNING: CONTRACTOR IS TO
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LOCATION OF ALL UTILITIES
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[illegible]

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TBPE Firm No. 928



KHA PROJECT 069285504	DATE JUNE 2024	SCALE: AS SHOWN	DESIGNED BY: DS	DRAWN BY: AE/DB	CHECKED BY: BG
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STORM P&P -
LINE D

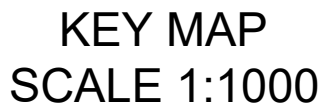
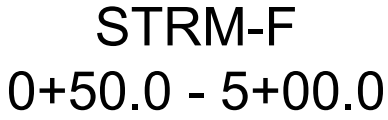
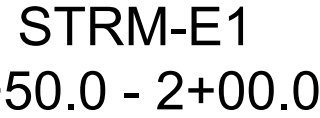
WALSH TRAILS SECTION 5 & 6

CITY OF CEDAR PARK
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER

35 OF 89

2024-1-SI



BENCHMARKS



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TBP Firm No. 928

07/09/2024

KHA PROJECT 069285504	DATE JUNE 2024	SCALE: AS SHOWN	DESIGNED BY: DS	DRAWN BY: AE/DB	CHECKED BY: BG
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STORM P&P -
LINES E1 F

WALSH TRAILS
SECTION 5 & 6
CITY OF CEDAR PARK
WILLIAMSON COUNTY, TEXAS

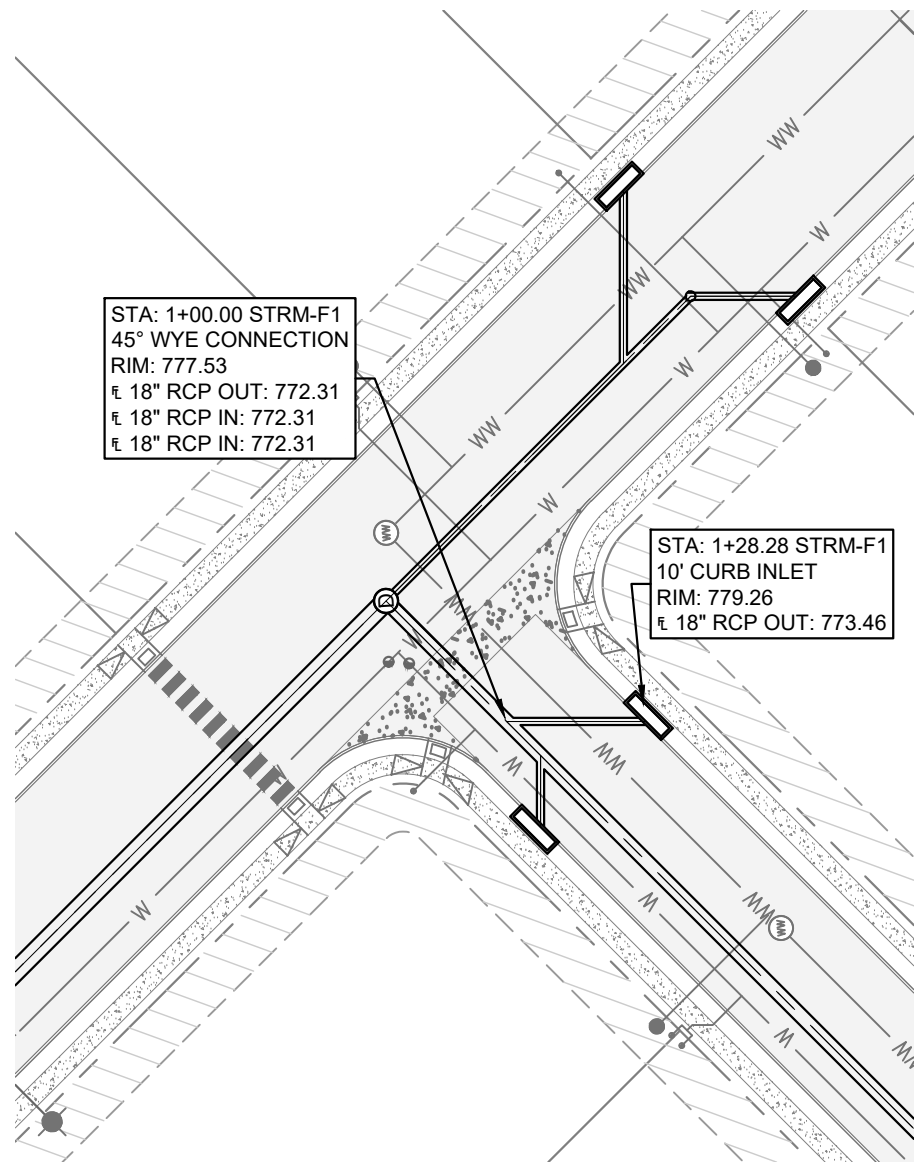
SHEET NUMBER
38 OF 89

2024-1-SI

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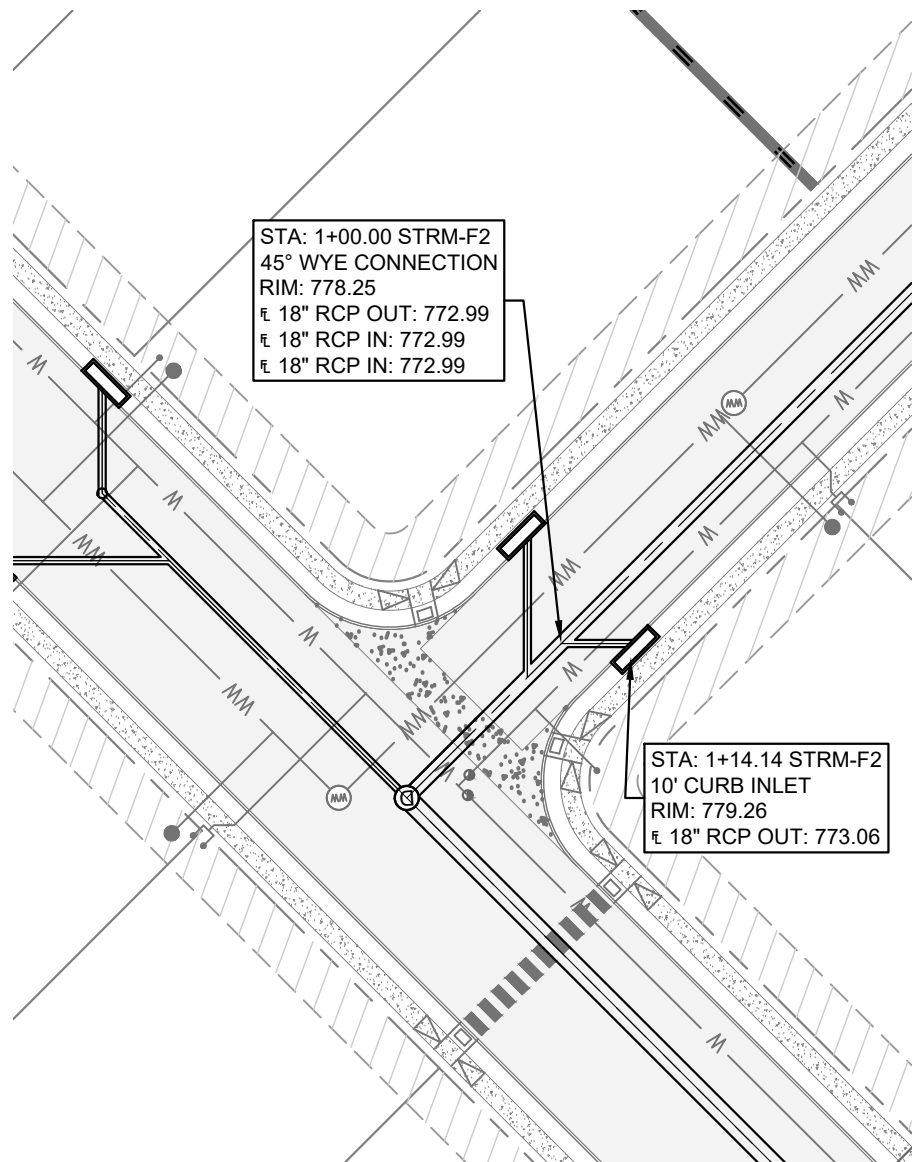
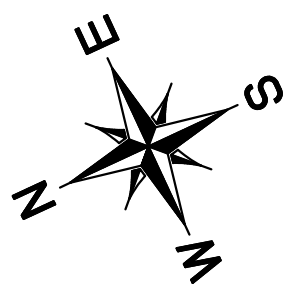
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WALSH GLEN
DRIVE

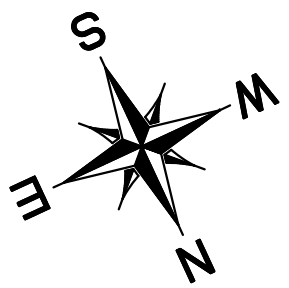


KILKENNY
HILL
DRIVE

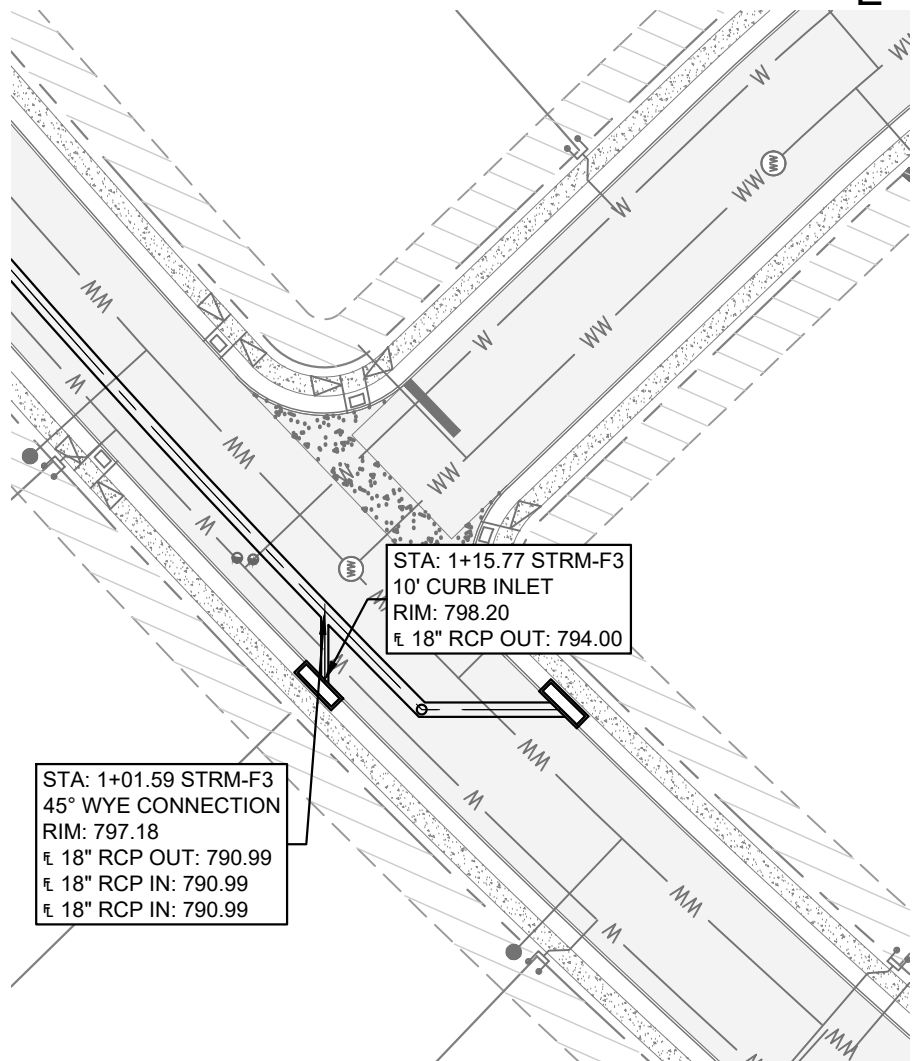
WALSH GLEN
DRIVE



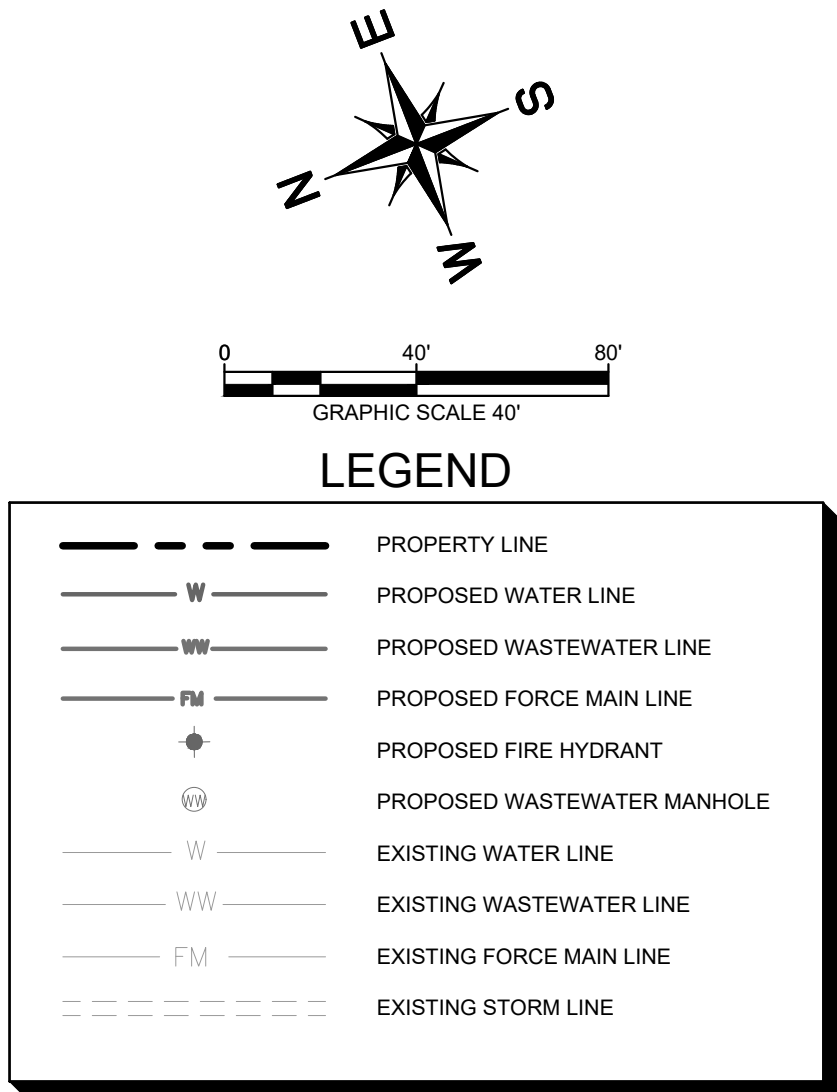
KILKENNY
HILL
DRIVE



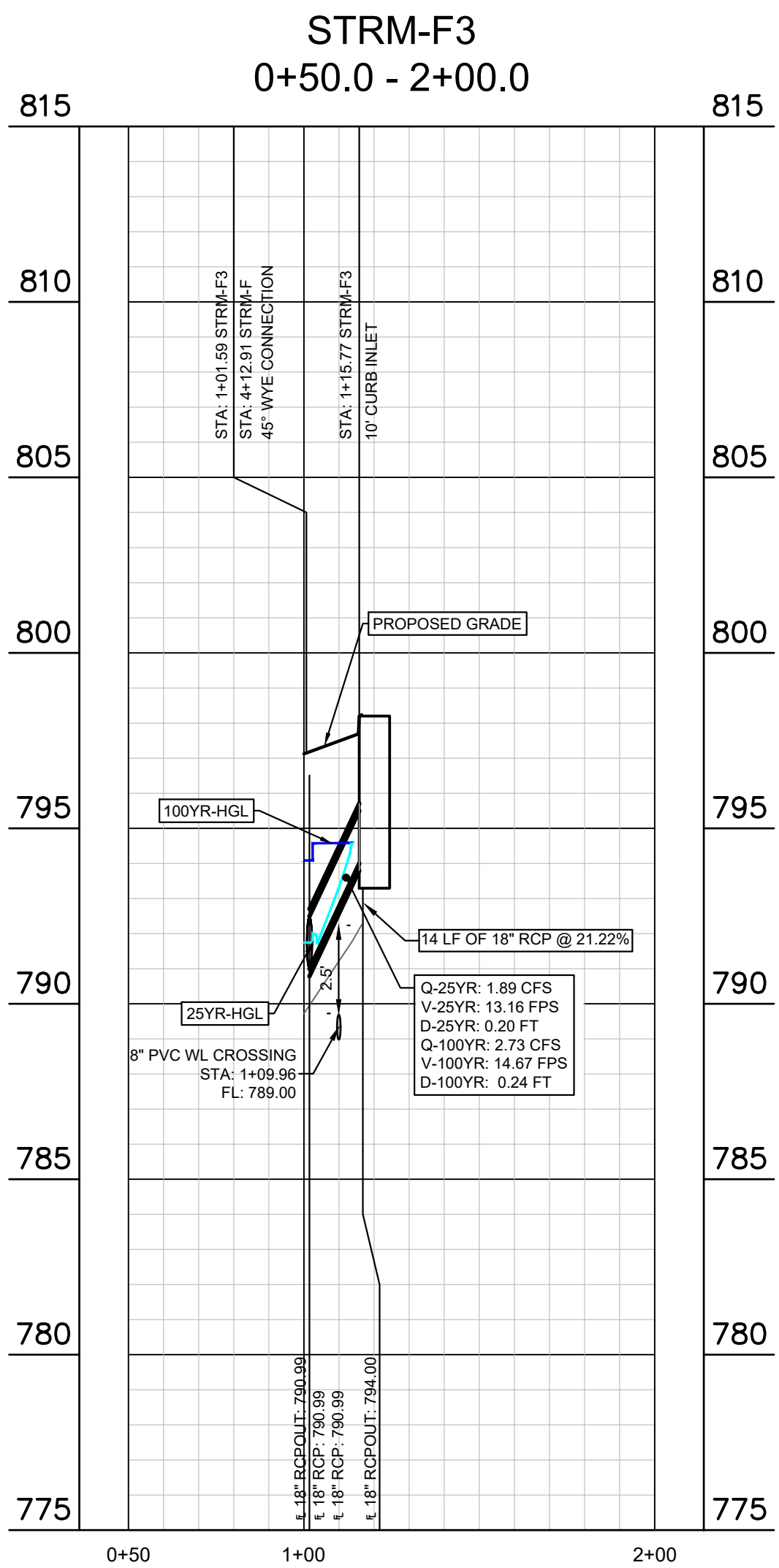
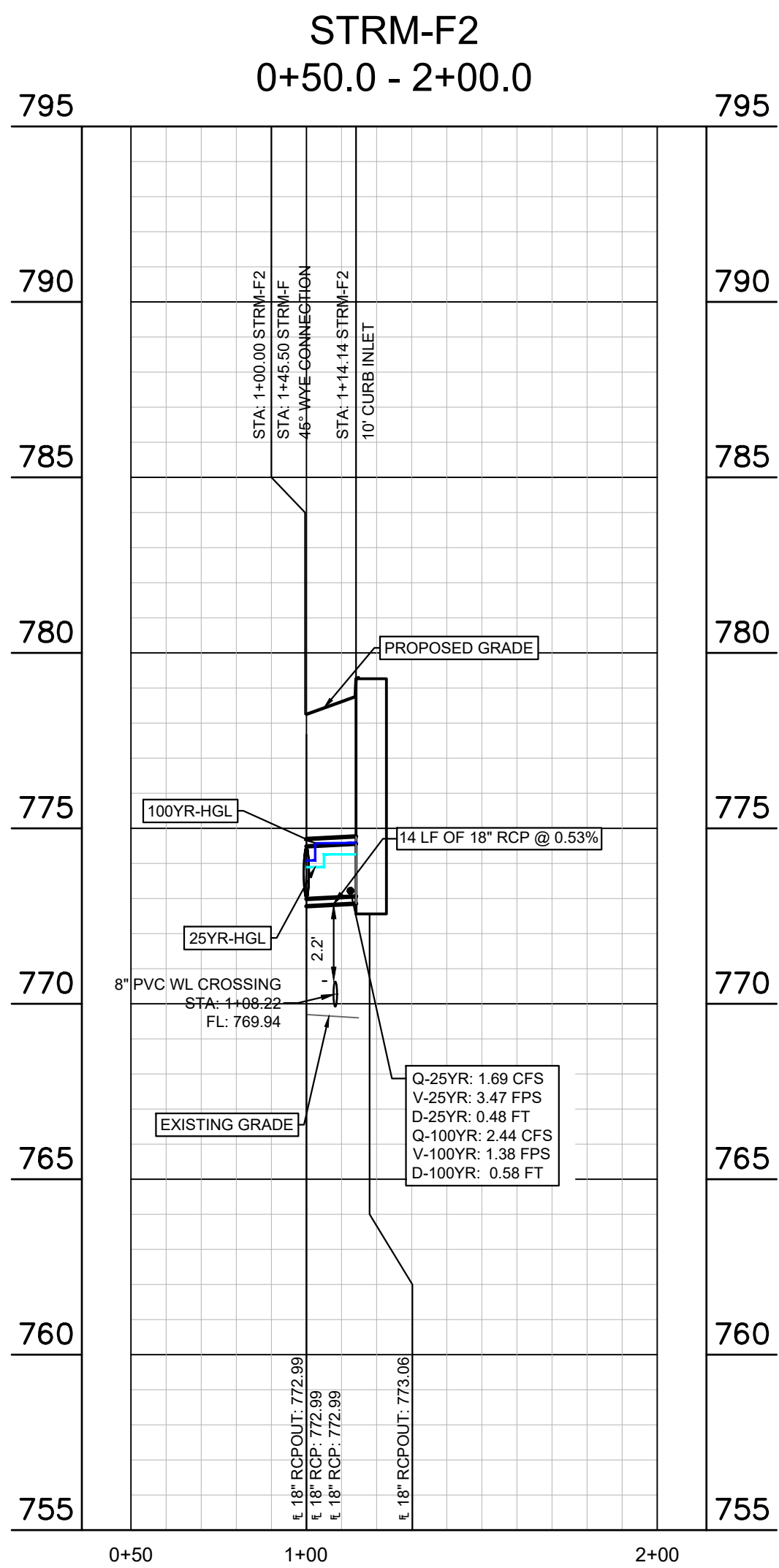
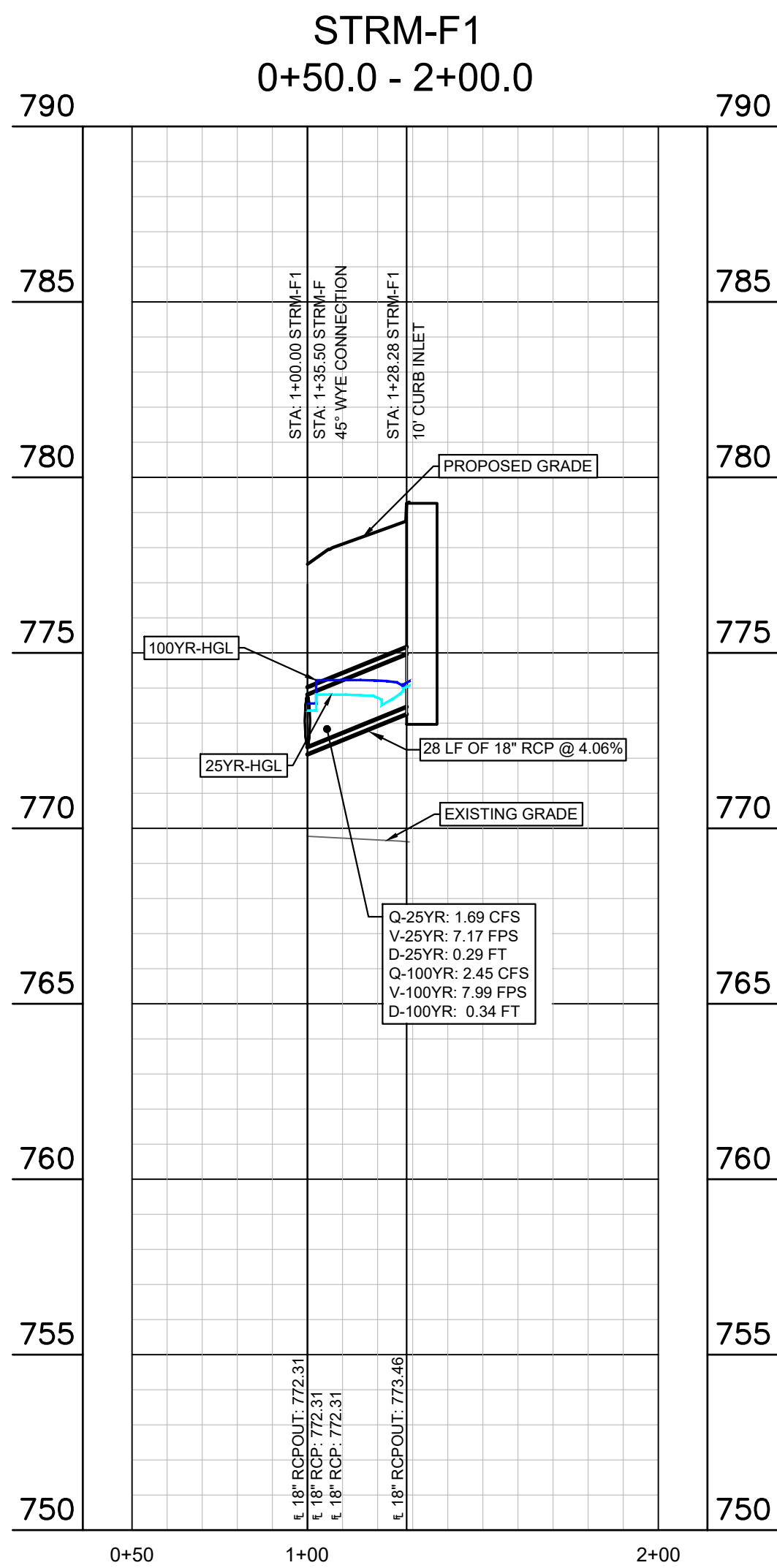
KILKENNY
HILL
DRIVE



STREET
E



PROFILE SCALE
1" = 40' HORIZONTAL
1" = 4' VERTICAL



- NOTES:
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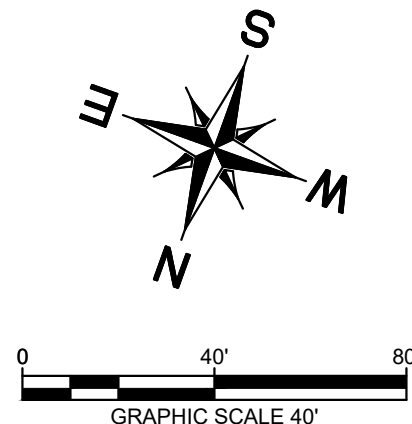
BENCHMARKS

- MAGNAIL LOCATED ON THE EAST BACK OF CURB OF WALSH GLEN DRIVE, 4400 FEET SOUTHEAST FROM THE INTERSECTION OF WALSH GLEN DRIVE AND ZACHARYS RUN.
N: 10164408.66'
E: 3109440.29'
ELEVATION=778.52'
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N: 10161256.37'
E: 3110195.86'
ELEVATION=773.78'











811
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WARNING: CONTRACTOR IS TO VERIFY PRESENCE AND EXACT LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.

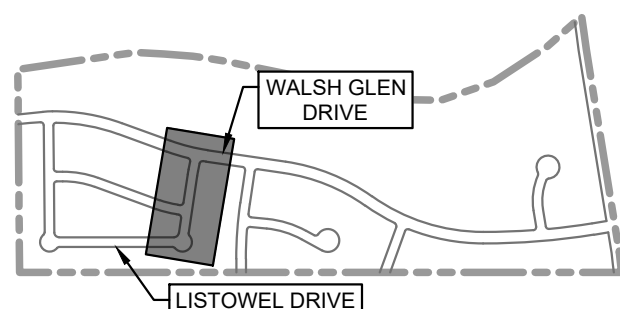
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STATE OF TEXAS BENJAMIN L. GREEN 132190 LICENSED PROFESSIONAL ENGINEER 07/09/2024		KHA PROJECT 069285504 DATE JUNE 2024 SCALE: AS SHOWN DESIGNED BY: DS DRAWN BY: AE/DB CHECKED BY: BG	
WALSH TRAILS SECTION 5 & 6 CITY OF CEDAR PARK WILLIAMSON COUNTY, TEXAS		STORM P&P - LINES F1 F2 F3	
SHEET NUMBER 39 OF 89		2024-1-SI	



LEGEND

	PROPERTY LINE
	PROPOSED WATER LINE
	PROPOSED WASTEWATER LINE
	PROPOSED FORCE MAIN LINE
	PROPOSED FIRE HYDRANT
	PROPOSED WASTEWATER MANHOLE
	EXISTING WATER LINE
	EXISTING WASTEWATER LINE
	EXISTING FORCE MAIN LINE
	EXISTING STORM LINE

KEY MAP
SCALE 1:1000

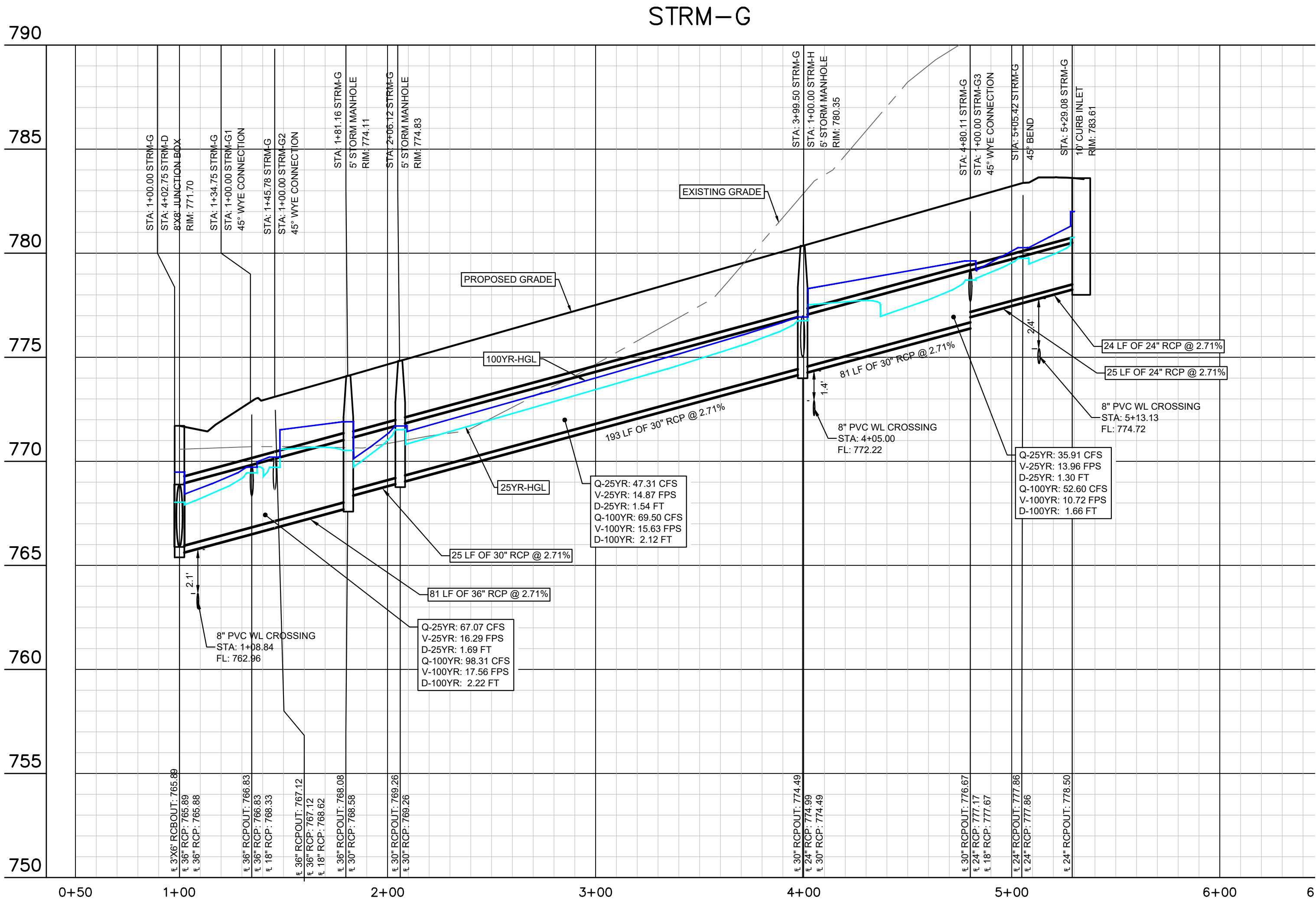


NOTES:

1. ALL MANHOLE COVERS SHALL READ "CITY OF CEDAR PARK"

PROFILE SCALE

1" = 40' HORIZONTAL
1" = 4' VERTICAL



BENCHMARKS

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E: 3109440.29'
ELEVATION=778.52'
2. MAGNAIL LOCATED ON THE SOUTH SIDE OF A SIDEWALK ON THE NORTH SIDE OF BRUSHY CREEK ROAD +431 FEET EAST OF THE INTERSECTION OF BRUSHY CREEK ROAD AND WASH HILL TRAIL.
N: 10161256.37'
E: 3110195.86'
ELEVATION=773.78'

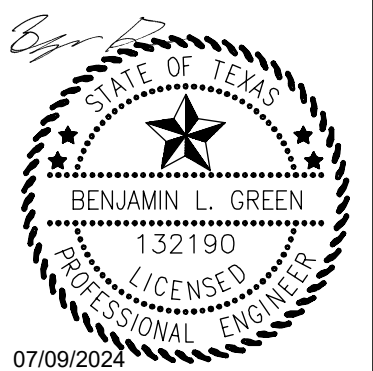


Know what's below. 
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WARNING: CONTRACTOR IS TO
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LOCATION OF ALL UTILITIES
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[illegible]

Kimley»»Horn
5301 SOUTHWEST PARKWAY, BUILDING 2, SUITE 100
Austin, Texas 78741
PHONE: 512-646-2237
WWW.KIMLEY-HORN.COM
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TBE Firm No. 928



KHA PROJECT 069285504	DATE JUNE 2024	SCALE: AS SHOWN	DESIGNED BY: DS	DRAWN BY: AE/DB	CHECKED BY: BG
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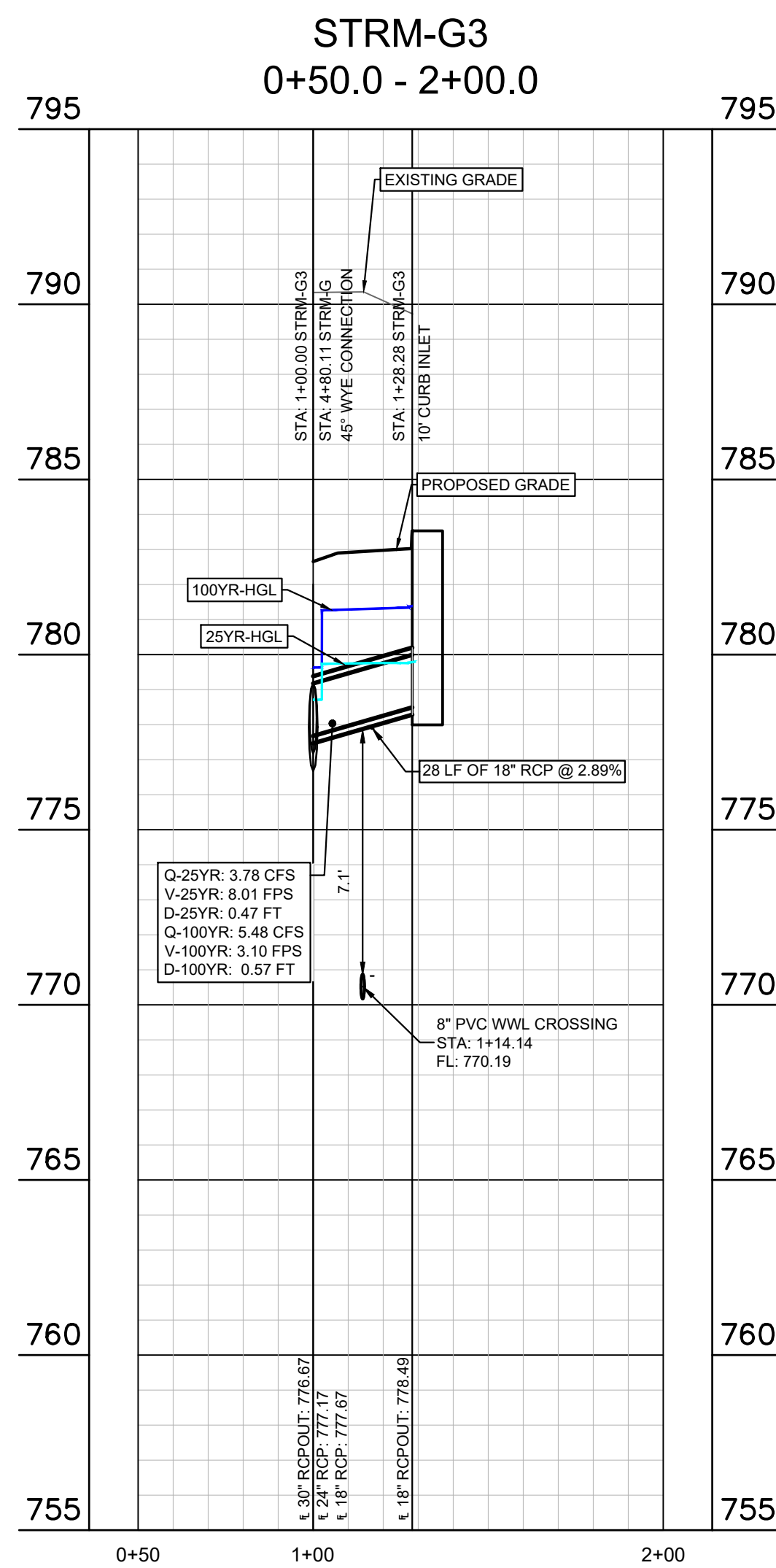
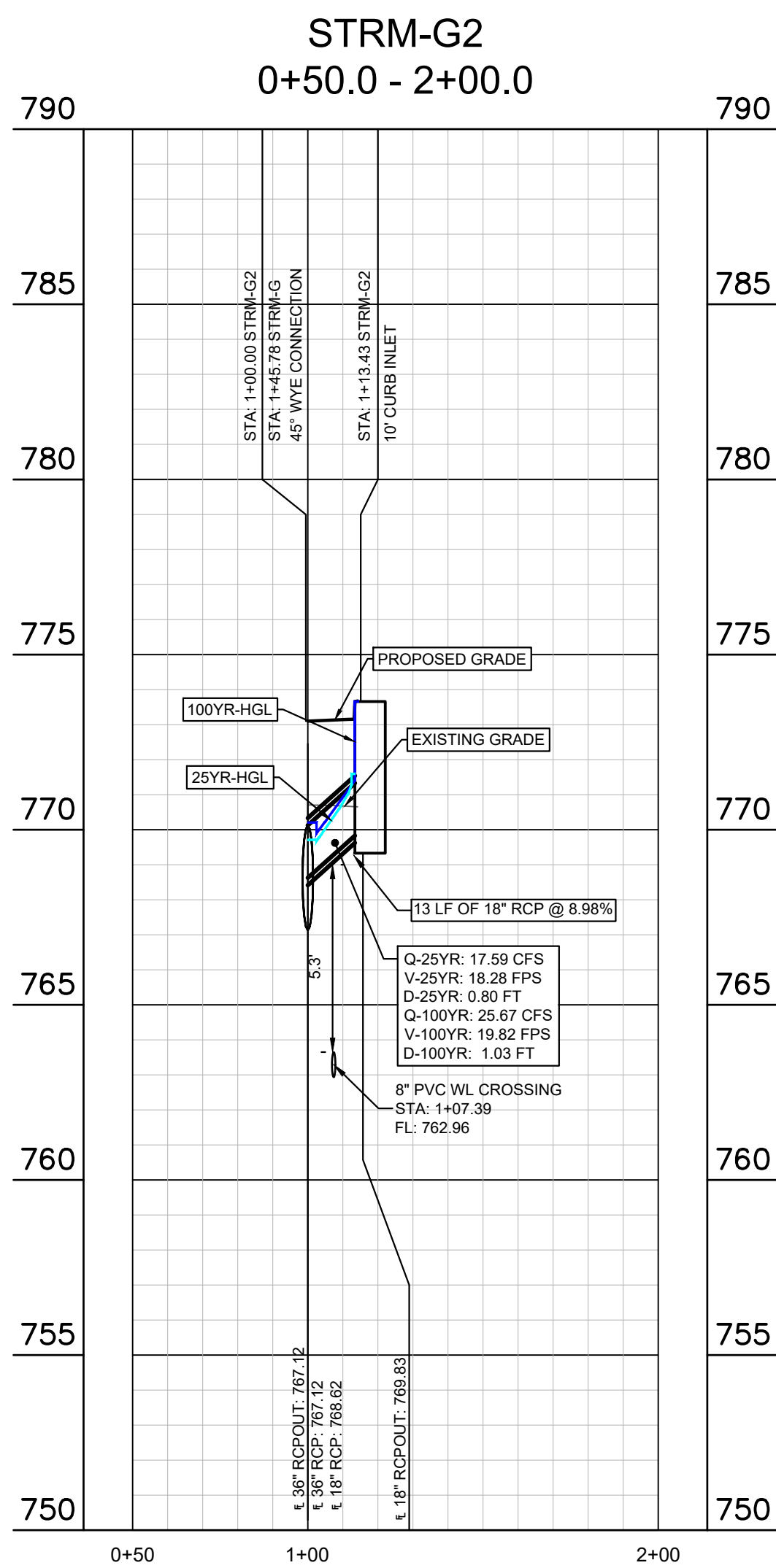
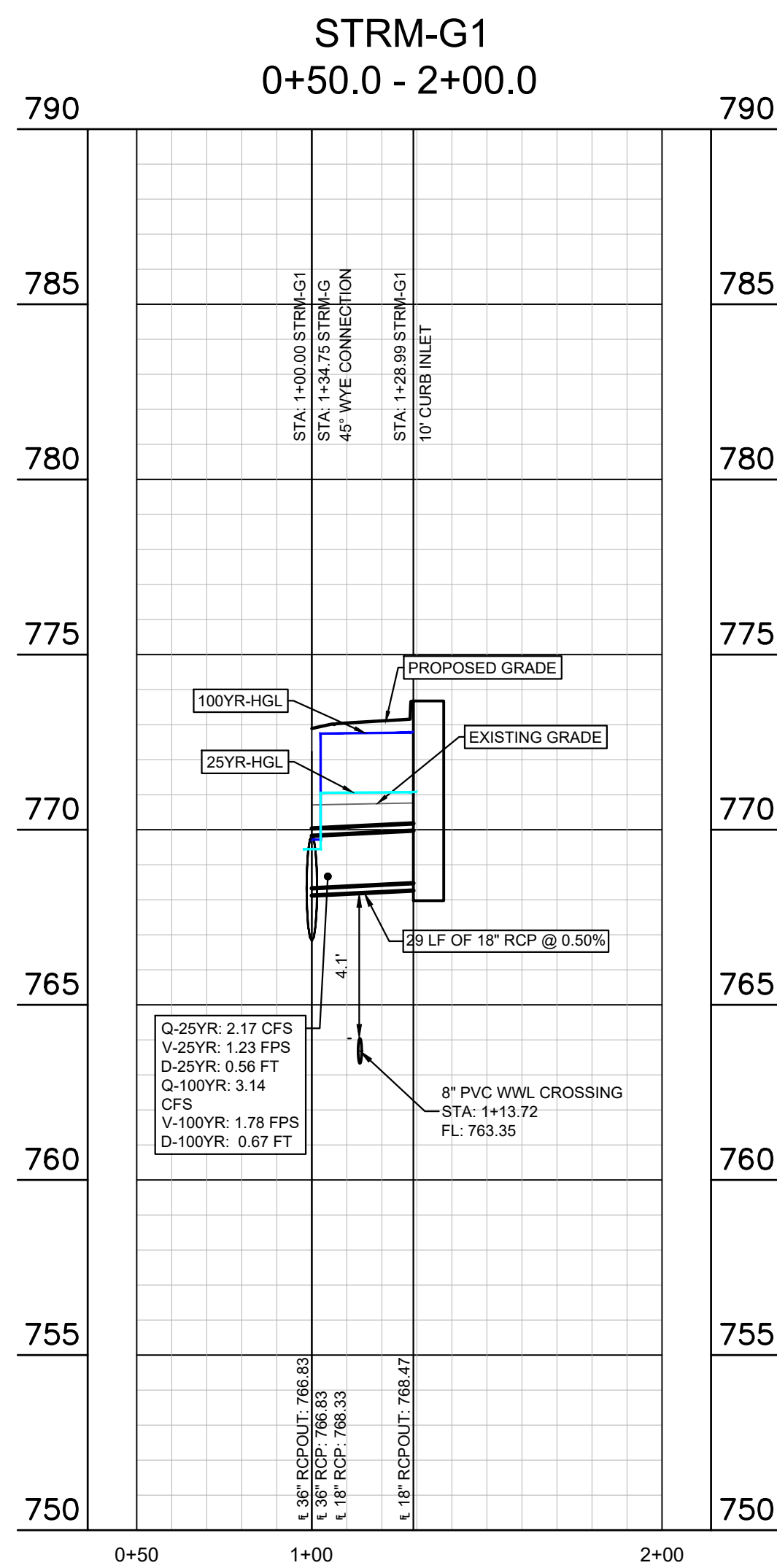
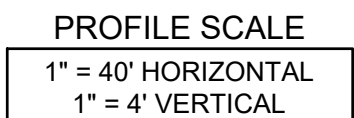
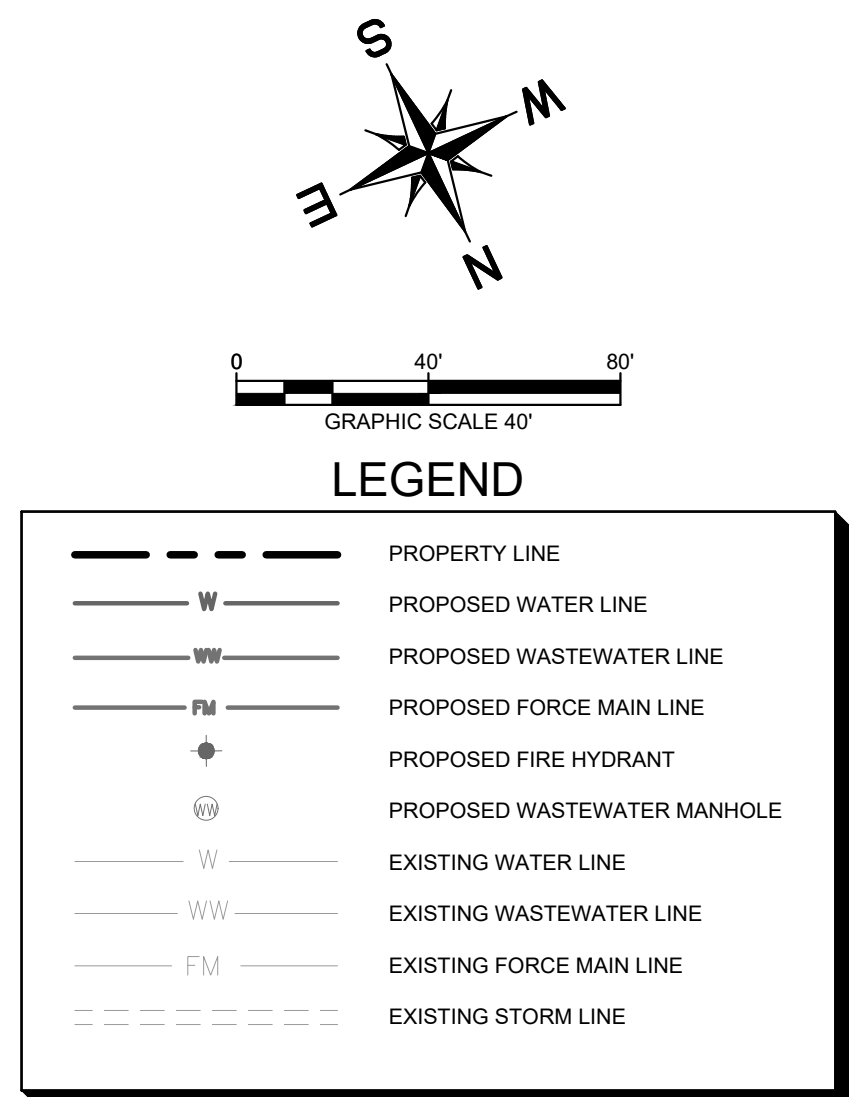
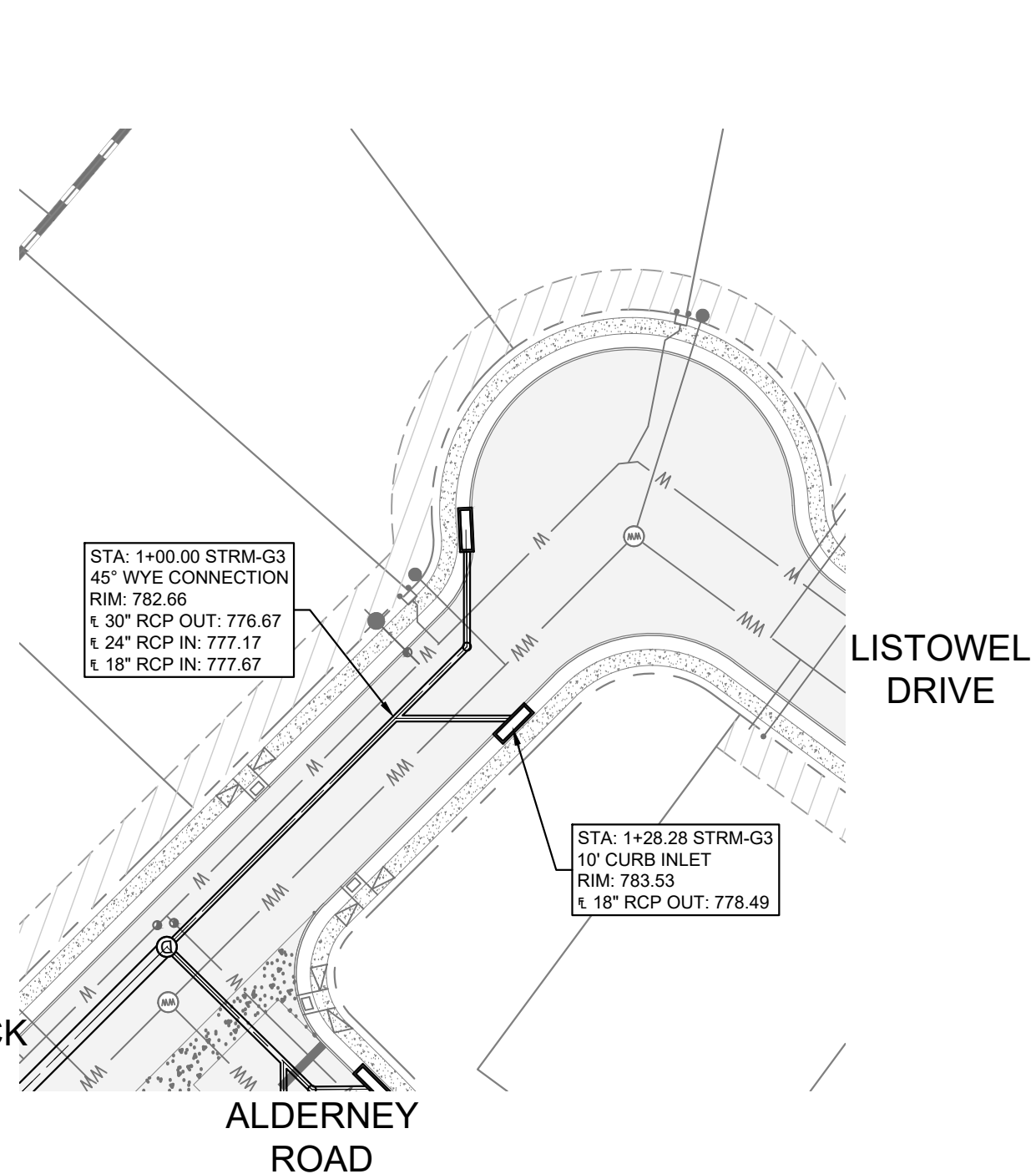
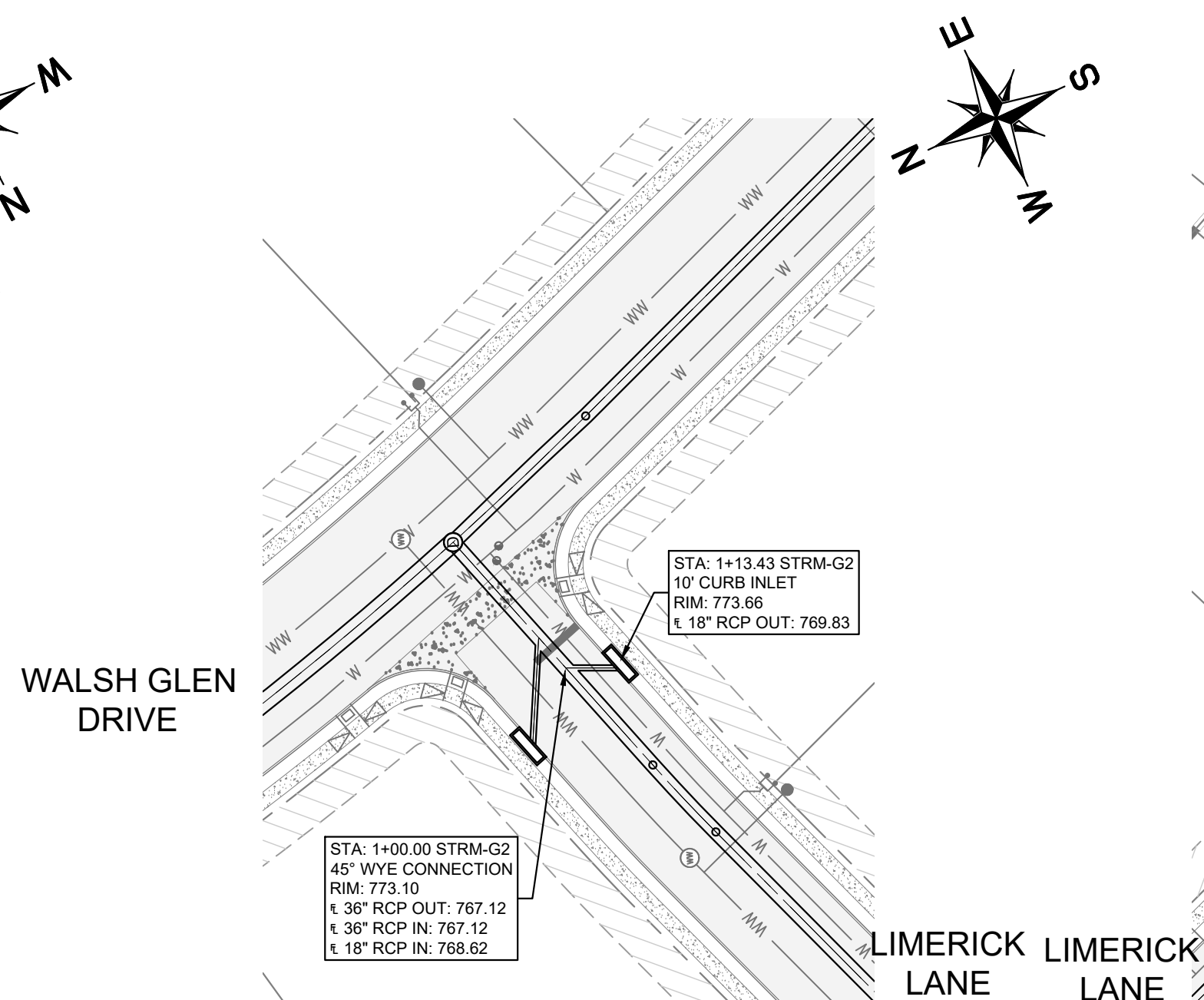
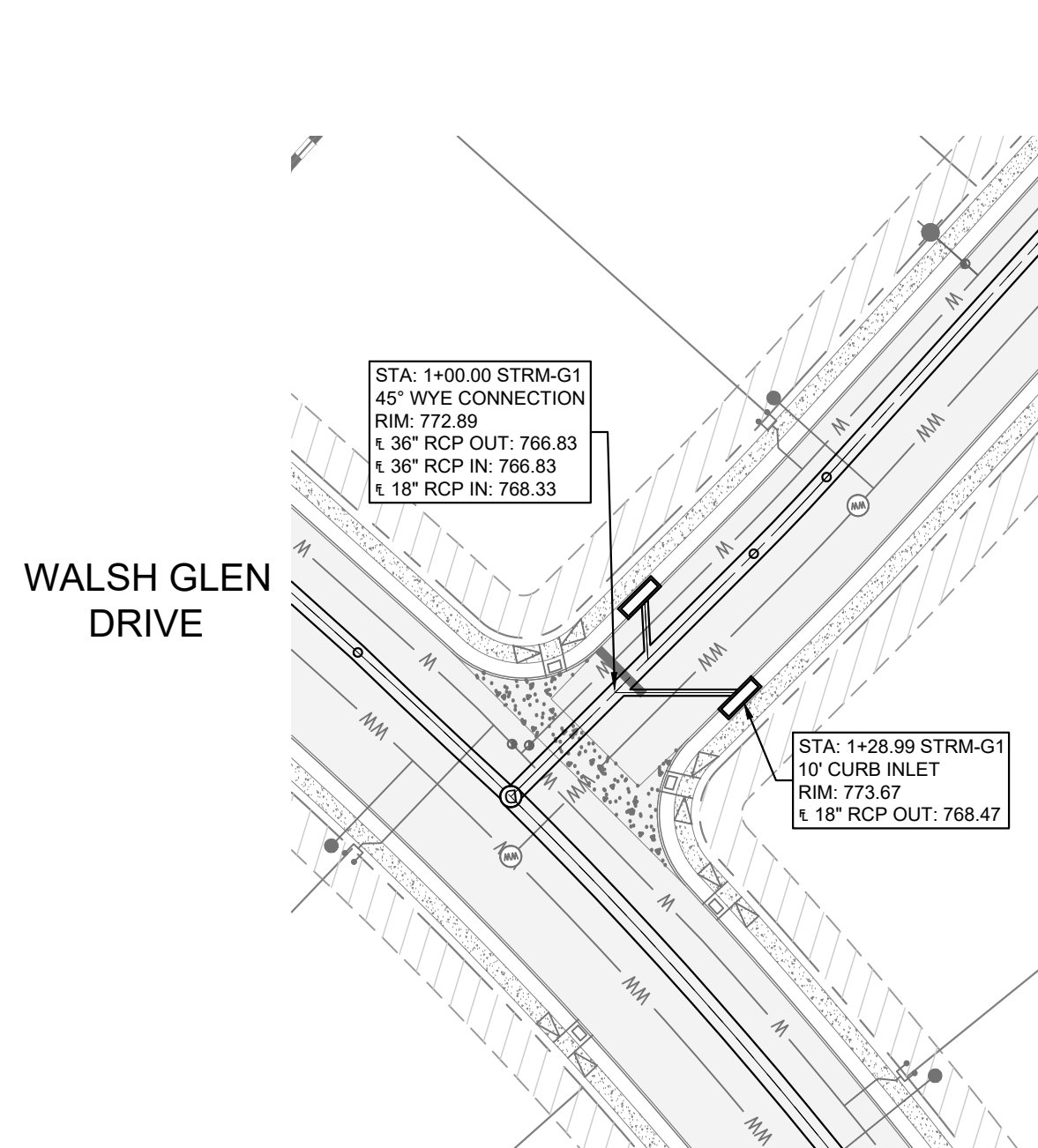
STORM P&P -
LINE G

**WALSH TRAILS
SECTION 5 & 6**
CITY OF CEDAR PARK
WILLIAMSON COUNTY, TEXAS

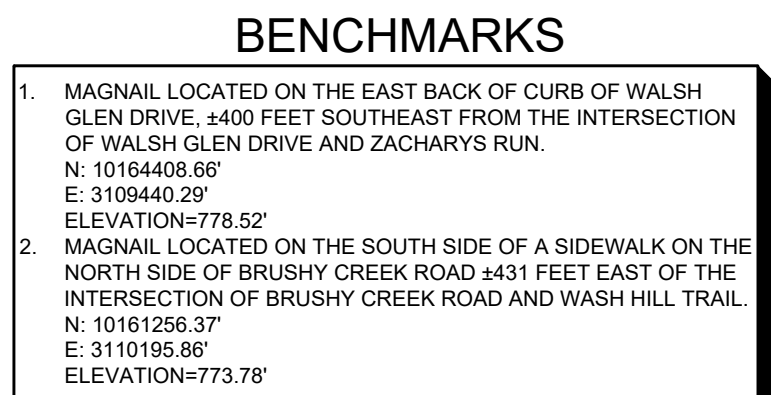
SHEET NUMBER
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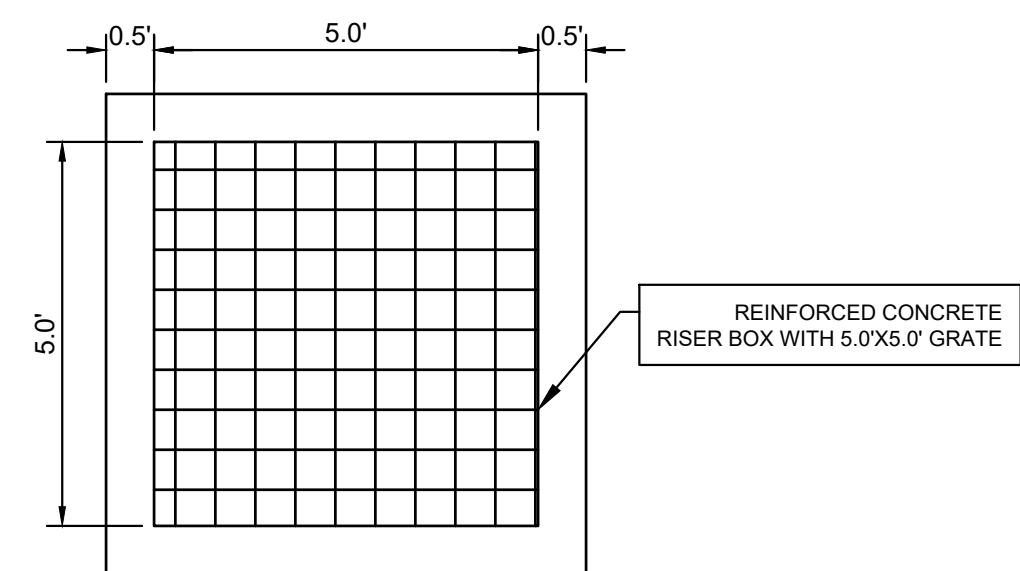
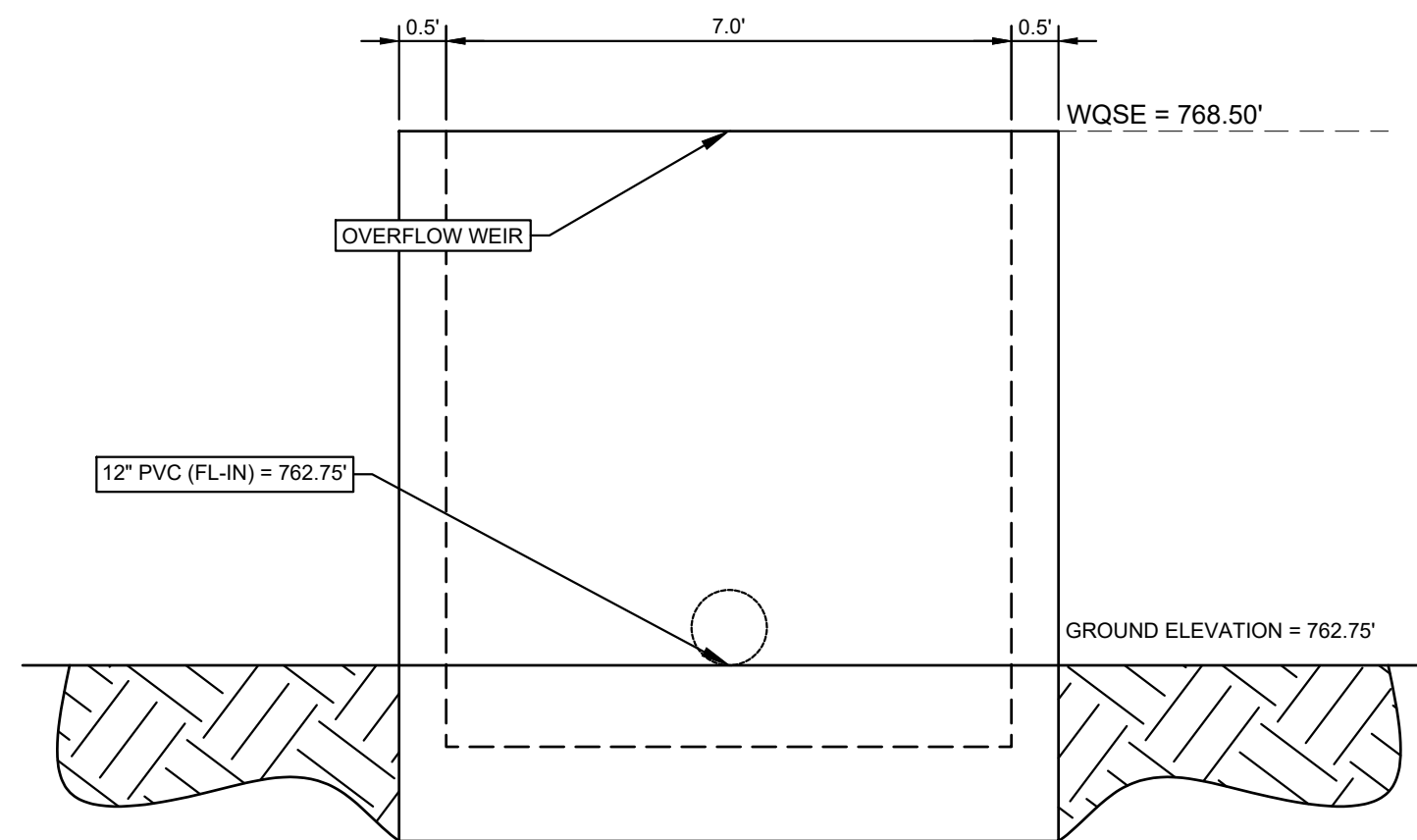
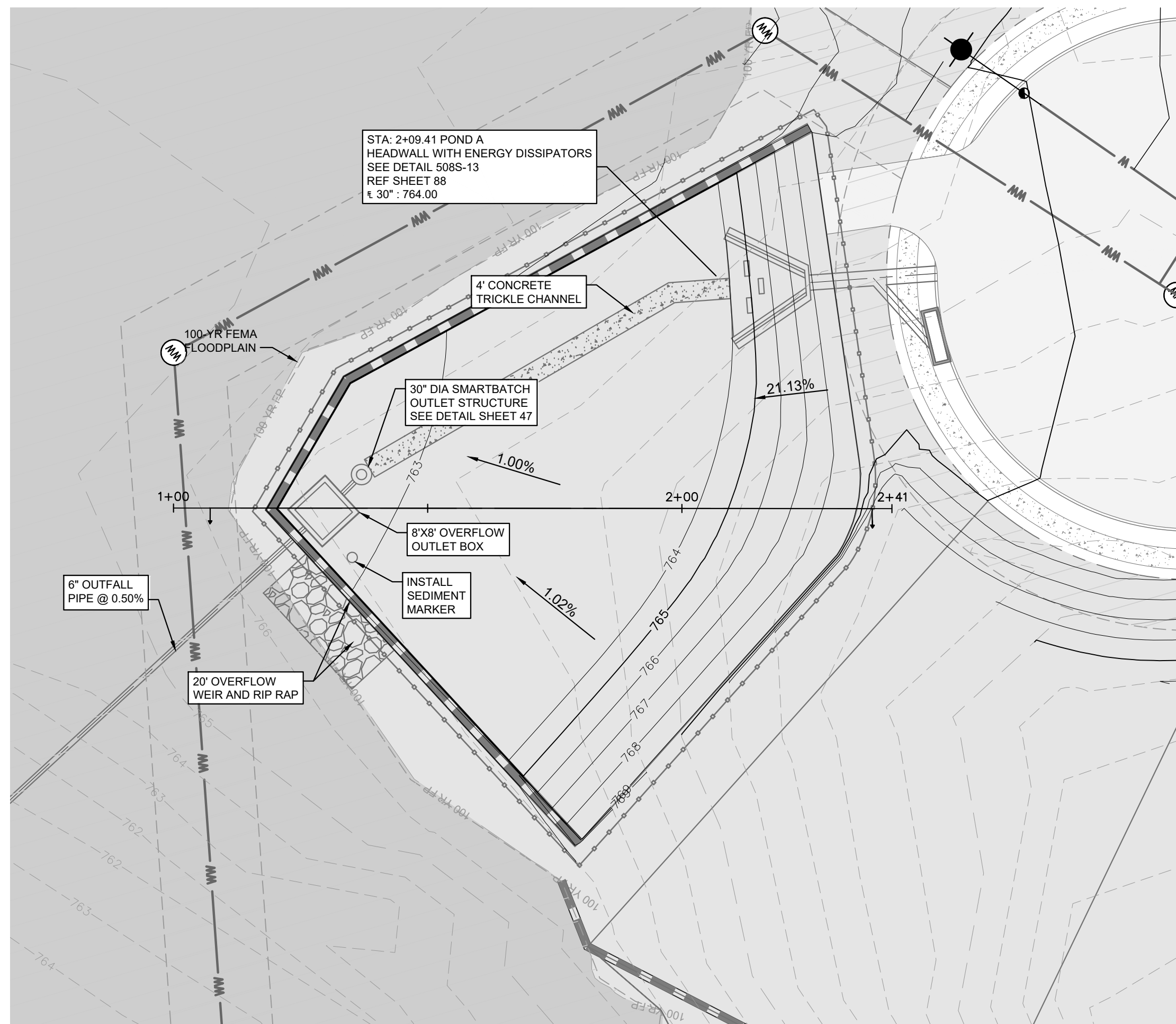
2024-1-SI

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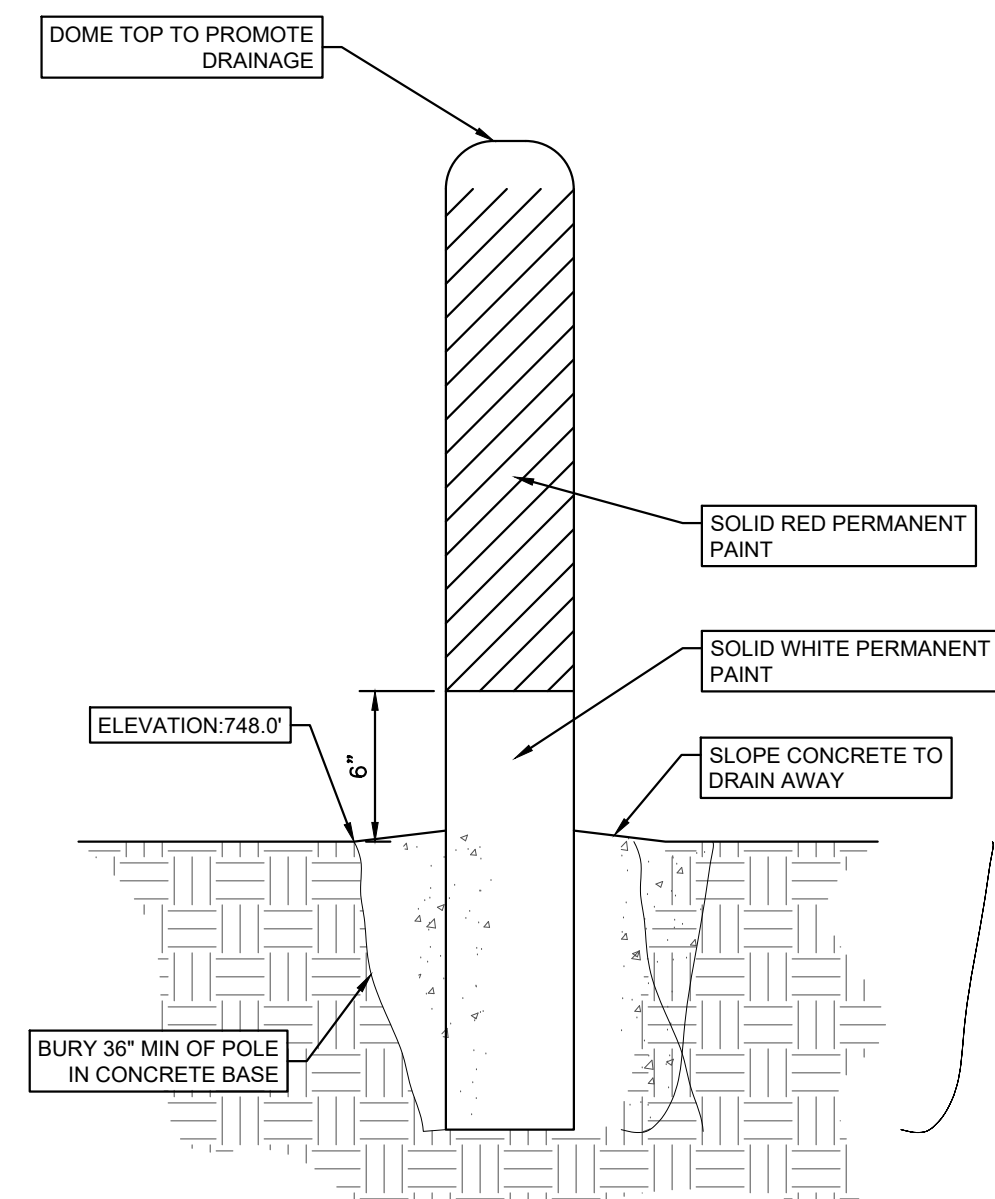
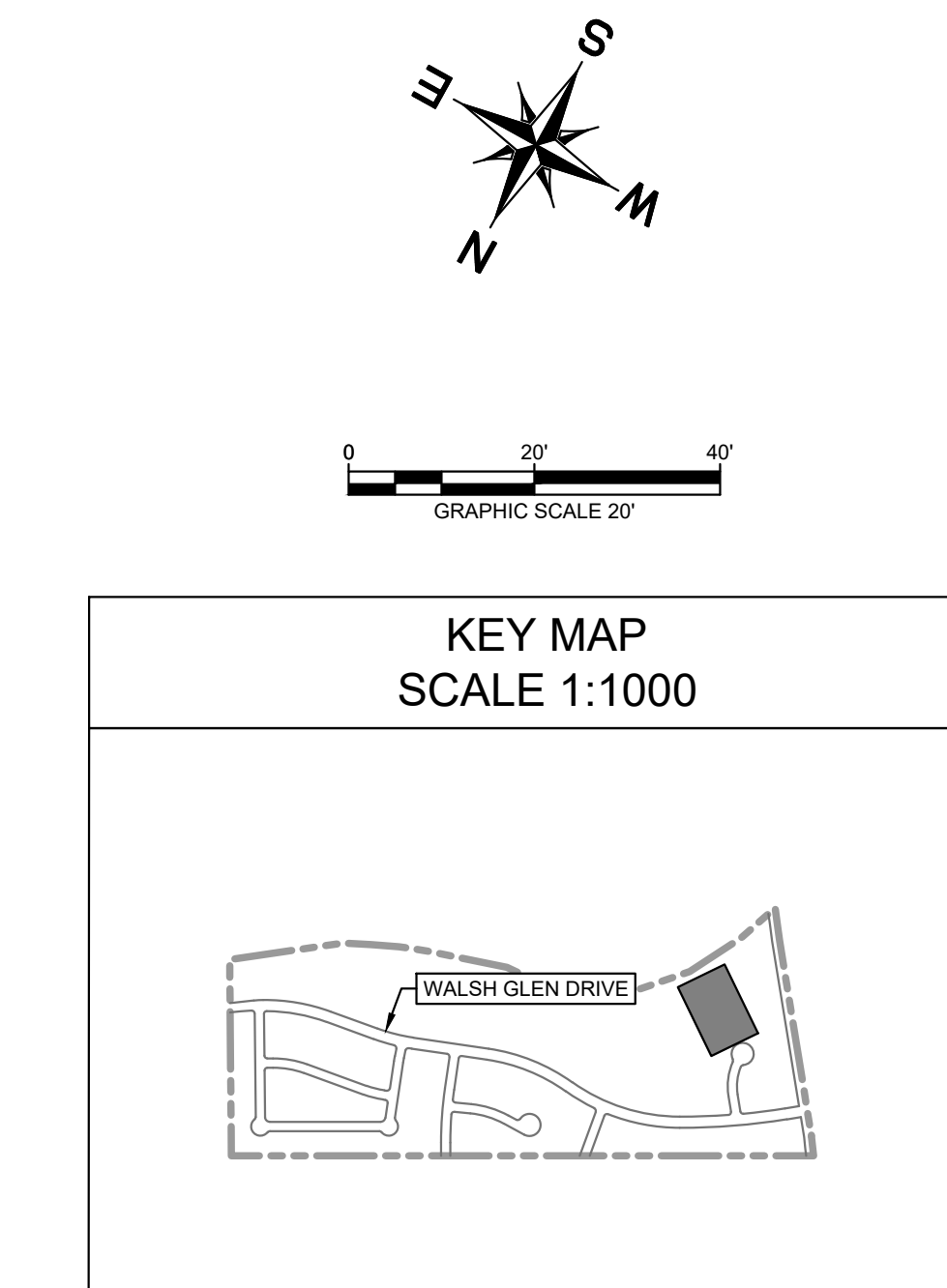
- NOTES:
1. ALL MANHOLE COVERS SHALL READ "CITY OF CEDAR PARK"





OUTLET CONTROL STRUCTURE
PER TXDOT PRESTD09-20

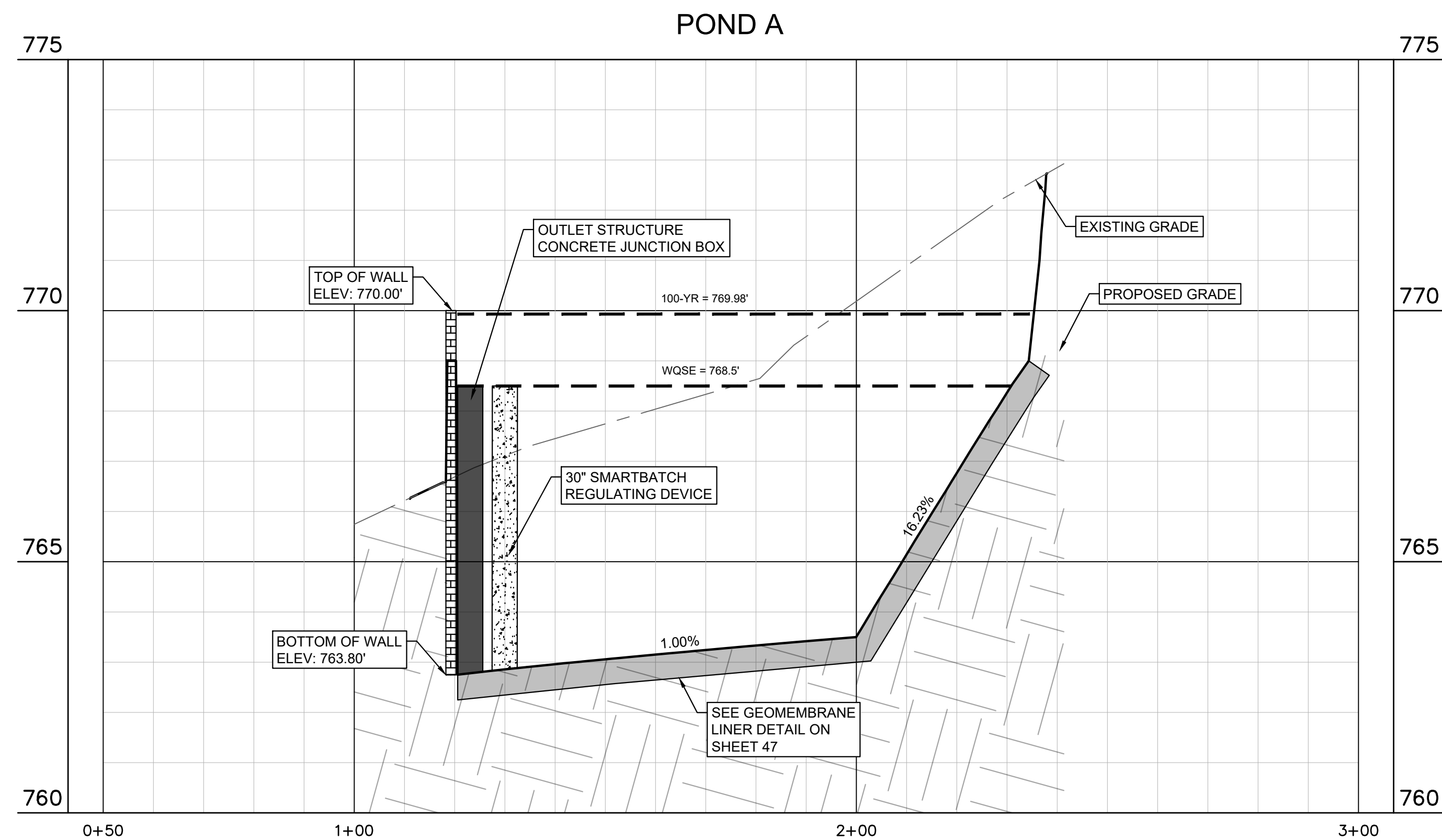
N.T.S.



VERTICAL SEDIMENT DEPTH MARKER DETAIL

N.T.S.

Water Quality Pond Stage Storage				
Stage (ft) (Elevation)	Area (sf)	Storage Volume (cf)	Discharge (CFS)	Event
762.75	0.00	0.00	0.20	-
763.00	812.50	75.61	0.20	-
764.00	5594.85	4719.70	0.20	-
765.00	6205.80	9437.77	0.20	-
766.00	6842.76	16577.45	0.20	-
767.00	7506.02	23749.79	0.20	-
768.00	8195.19	31598.44	0.20	-
768.50	8550.70	35784.58	0.20	WQSE
769.00	8841.25	39262.74	42.12	-
769.98	9065.21	43581.56	97.01	100-YR



- ## BENCHMARKS
1. MAGNAIL LOCATED ON THE EAST BACK OF CURB OF WALSH GLEN DRIVE, 400 FEET SOUTH EAST FROM THE INTERSECTION OF WALSH GLEN DRIVE AND ZACHARYS RUN.
N: 10164408.66
E: 3109440.29
ELEVATION=778.52
 2. MAGNAIL LOCATED ON THE SOUTH SIDE OF A SIDEWALK ON THE NORTH SIDE OF BRUSHY CREEK ROAD 431 FEET EAST OF THE INTERSECTION OF BRUSHY CREEK ROAD AND WASH HILL TRAIL.
N: 10161266.37
E: 3110195.86
ELEVATION=773.78'

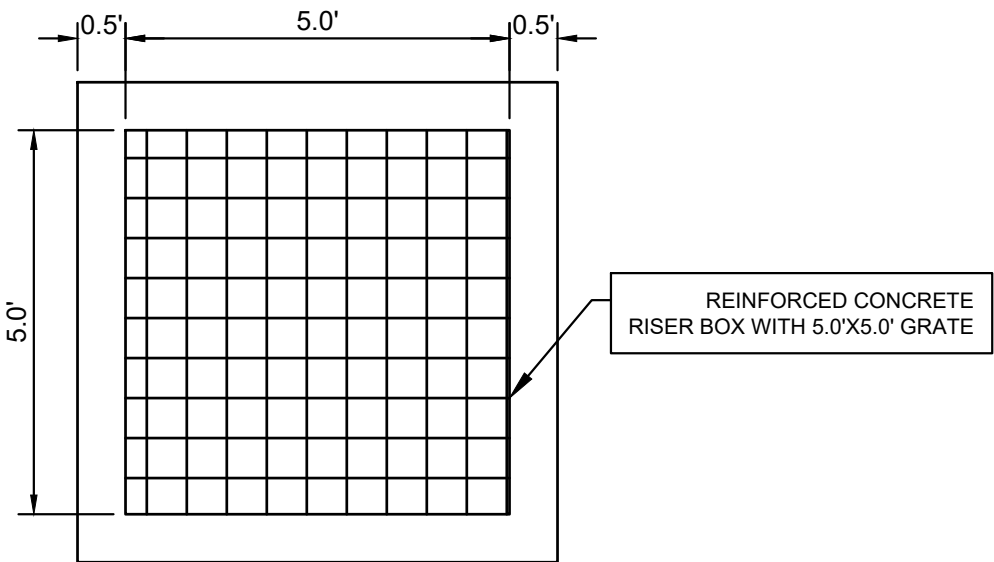
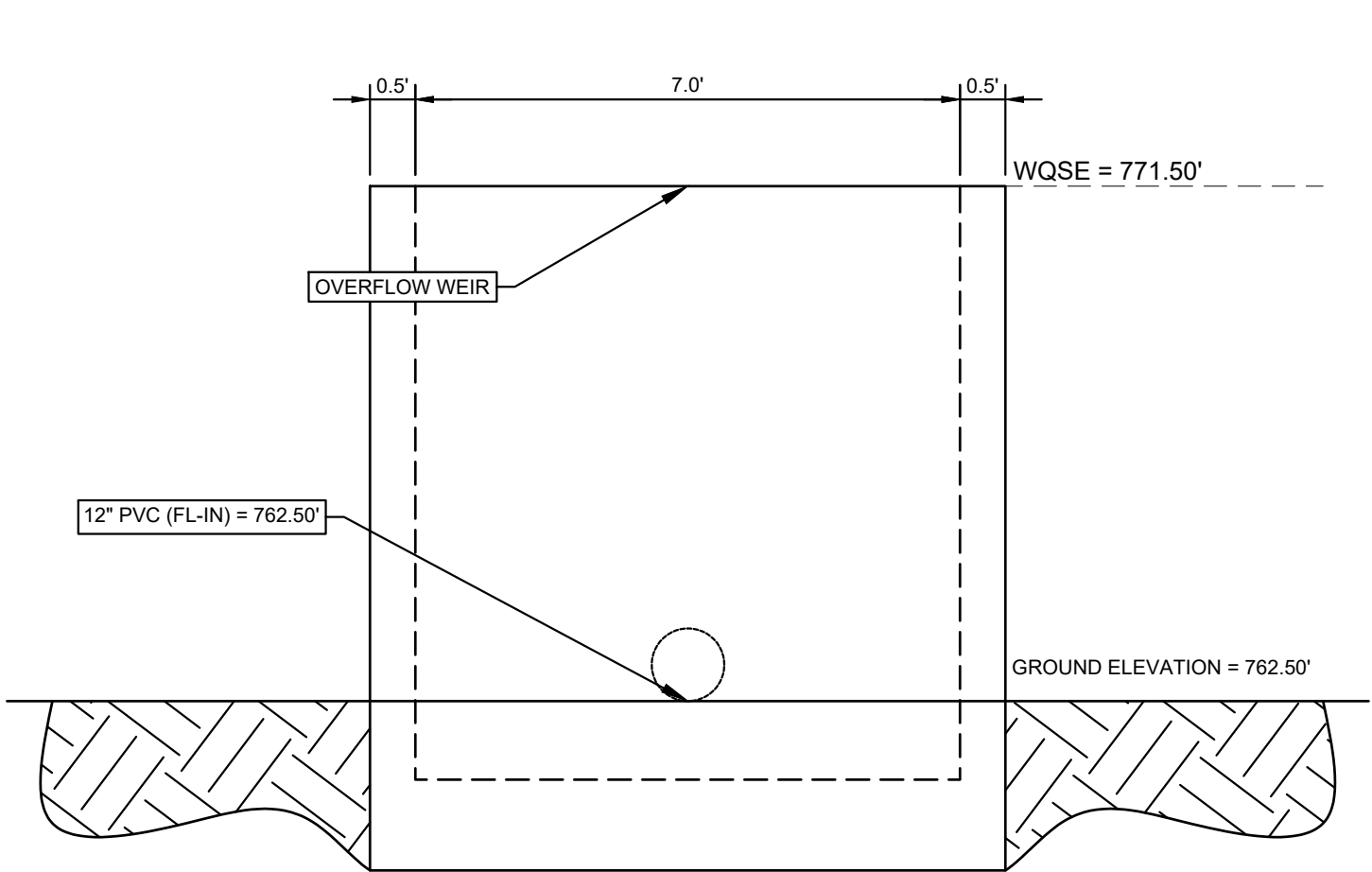
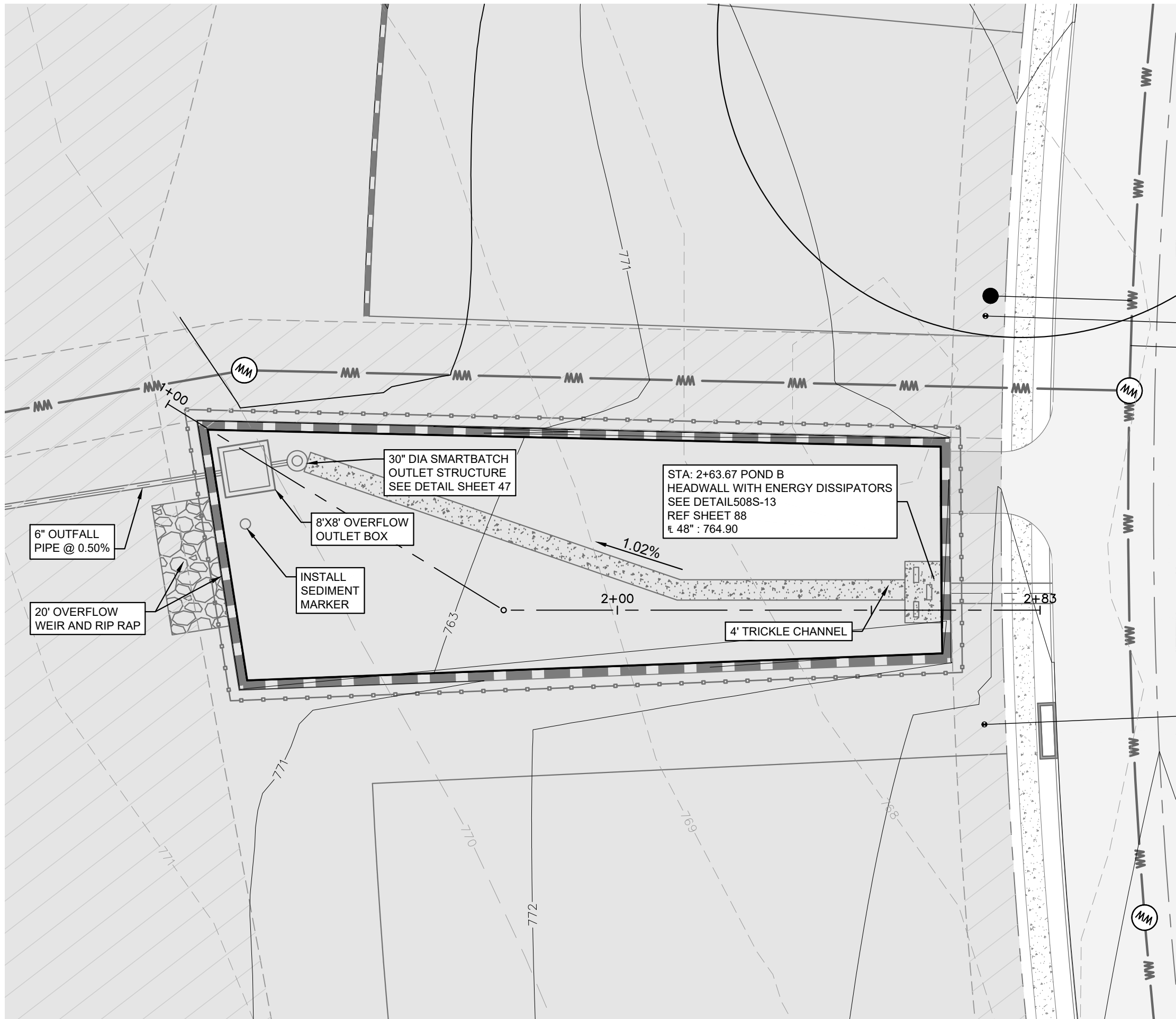


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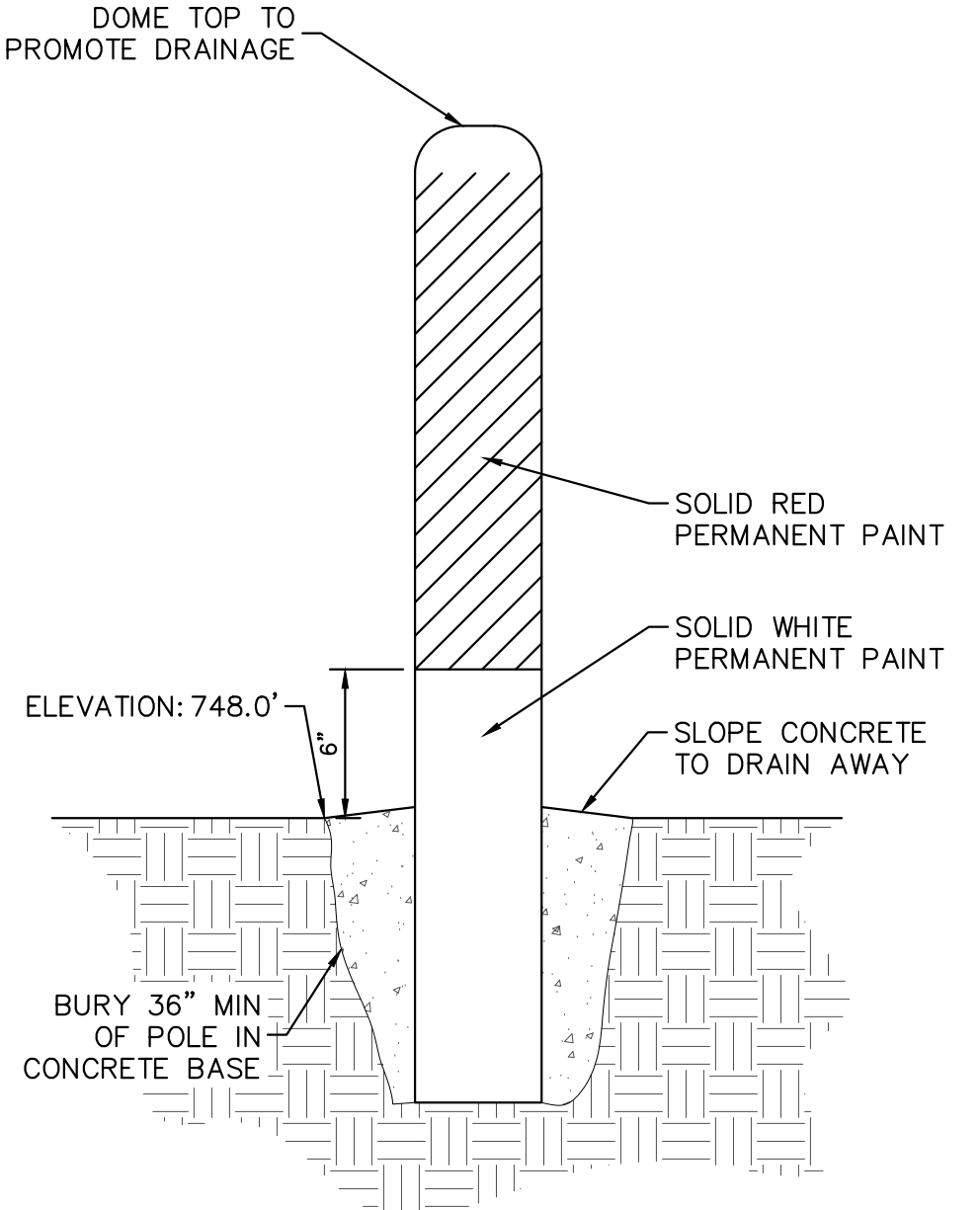
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OUTLET CONTROL STRUCTURE
PER TXDOT PRESTD09-20
N.T.S.

Water Quality Pond Stage Storage				
Stage (ft) (Elevation)	Area (sf)	Storage Volume (cf)	Discharge (CFS)	Event
762.50	0.00	0.00	0.20	-
763.00	2337.52	520.63	0.20	-
764.00	6294.57	5188.43	0.20	-
765.00	6305.01	11488.21	0.20	-
766.00	6315.49	17798.46	0.20	-
767.00	6326.03	24119.21	0.20	-
768.00	6336.61	30450.53	0.20	-
769.00	6347.23	36792.44	0.20	WQSE
770.00	6357.89	43145.00	39.62	-
771.00	6368.53	49508.22	-	-
771.50	6373.84	52693.81	-	-
772.00	6378.08	55244.19	-	-



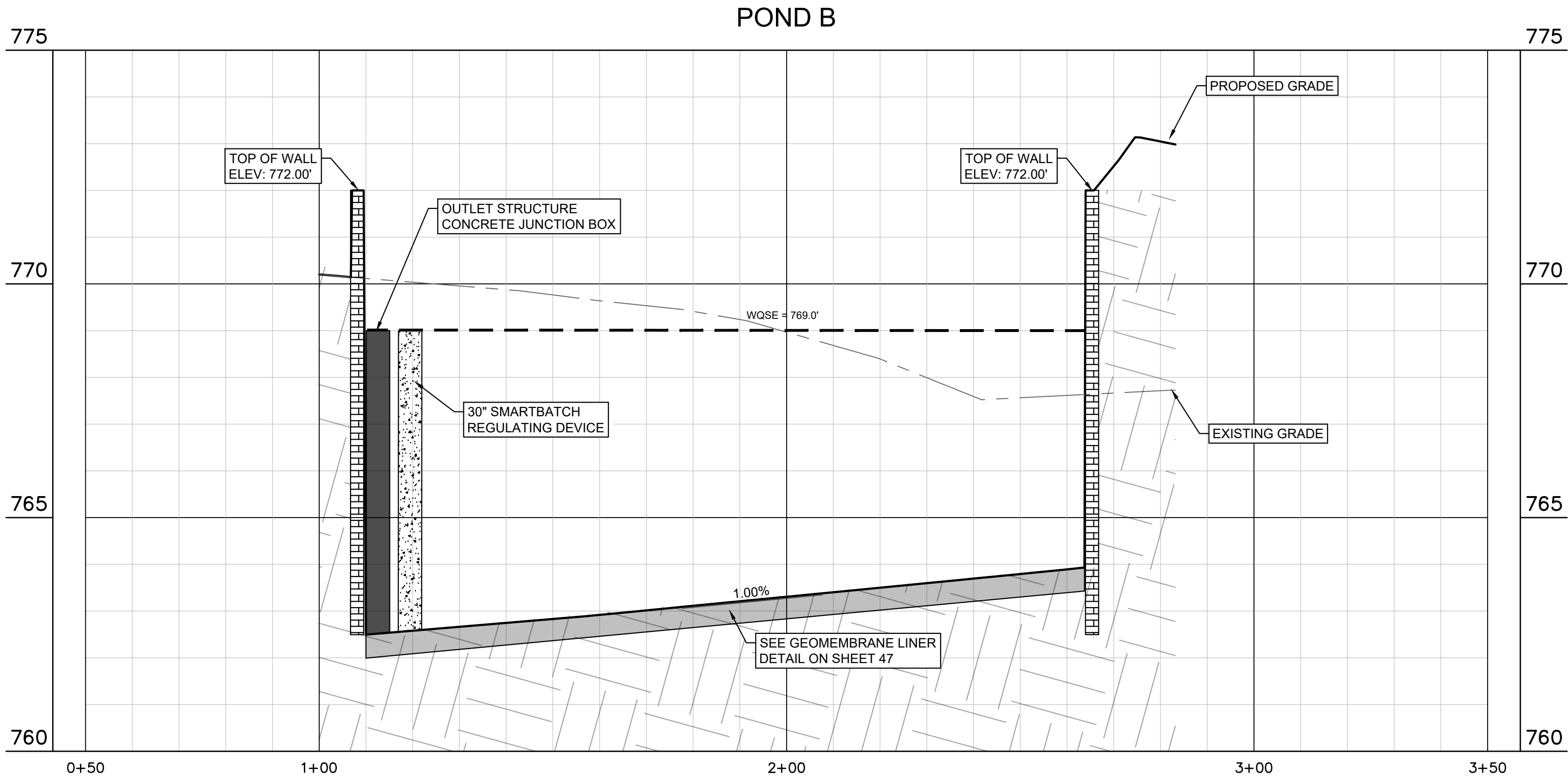
VERTICAL SEDIMENT DEPTH MARKER DETAIL
N.T.S.

- BENCHMARKS**
- MAGNAIL LOCATED ON THE EAST BACK OF CURB OF WALSH GLEN DRIVE, 400 FEET SOUTHEAST FROM THE INTERSECTION OF WALSH GLEN DRIVE AND ZACHARYS RUN.
N: 10164408.66'
E: 3109440.22'
ELEVATION=778.52'
 - MAGNAIL LOCATED ON THE SOUTH SIDE OF A SIDEWALK ON THE NORTH SIDE OF BRUSHY CREEK ROAD 431 FEET EAST OF THE INTERSECTION OF BRUSHY CREEK ROAD AND WASH HILL TRAIL.
N: 10161256.37'
E: 3110195.86'
ELEVATION=773.78'



Know what's below.
Call before you dig.

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PRIOR TO CONSTRUCTION.



NO.	REVISIONS	DATE	BY

Kimley»Horn

5301 SOUTHWEST PARKWAY, BUILDING 2, SUITE 100
DALLAS, TEXAS 75246-2237
PHONE: 214-546-2237
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TBP# Firm No. 928



KHA PROJECT 069285504	DATE JUNE 2024	SCALE: AS SHOWN	DESIGNED BY: DS	DRAWN BY: AE/DB	CHECKED BY: BG
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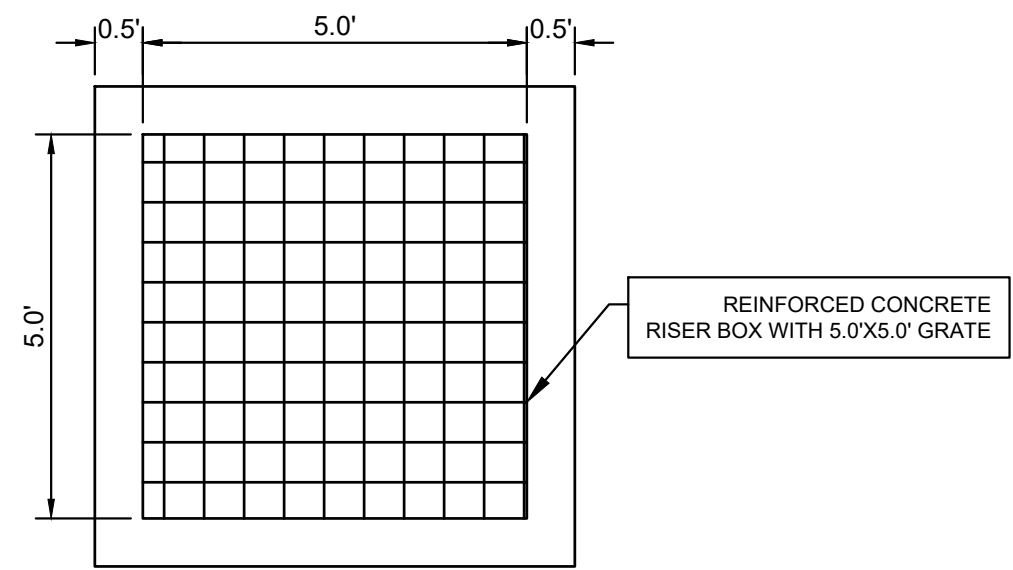
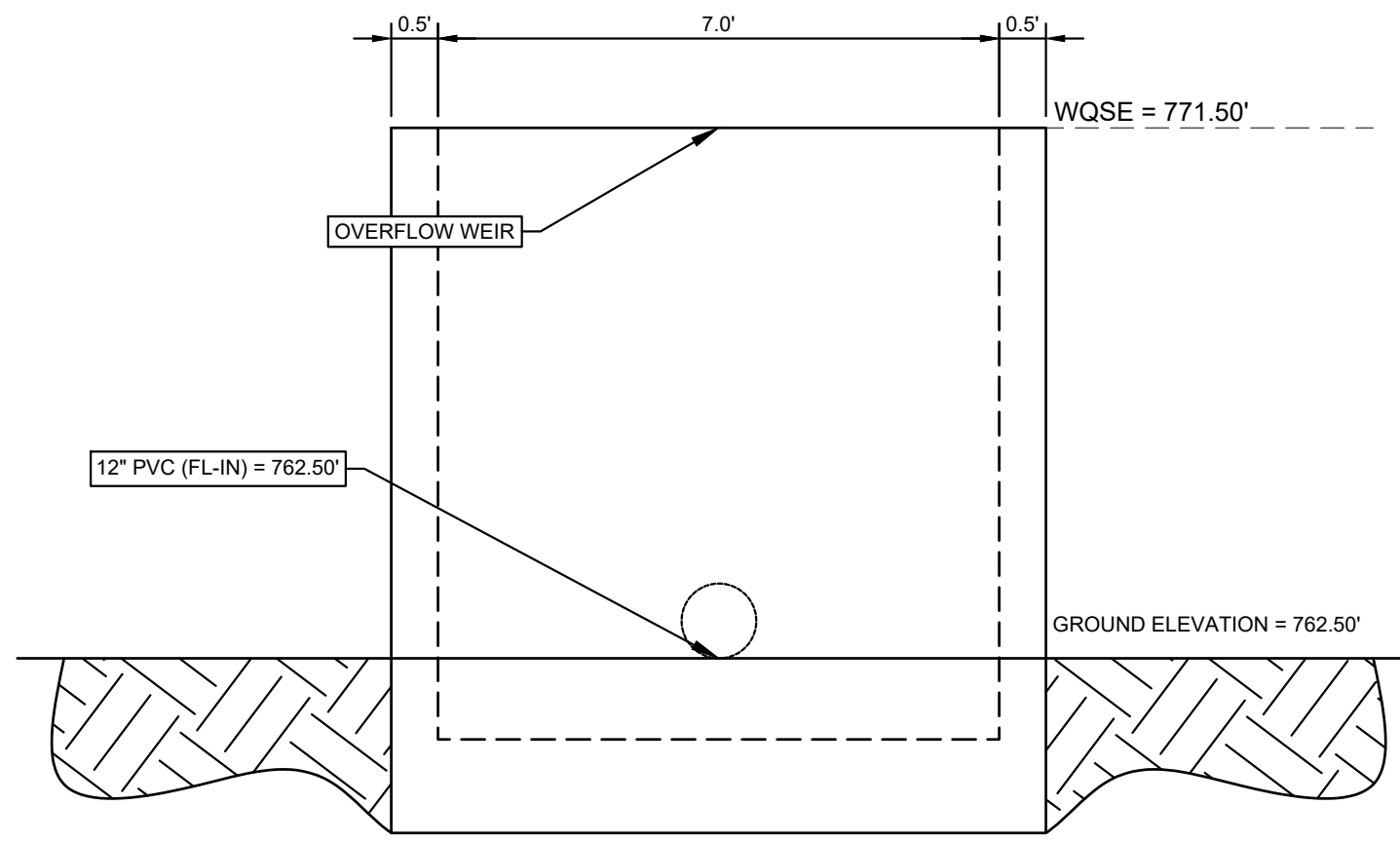
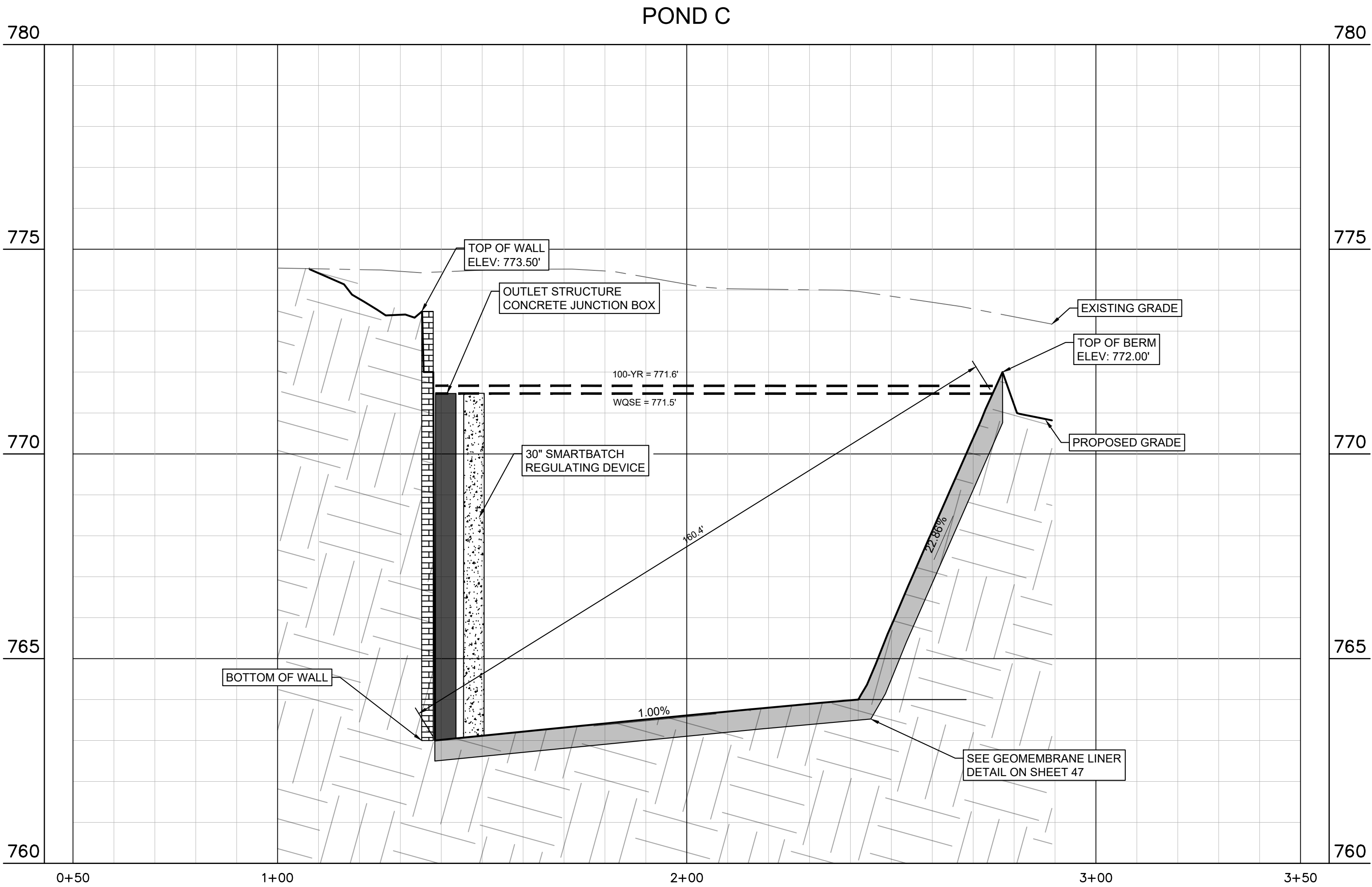
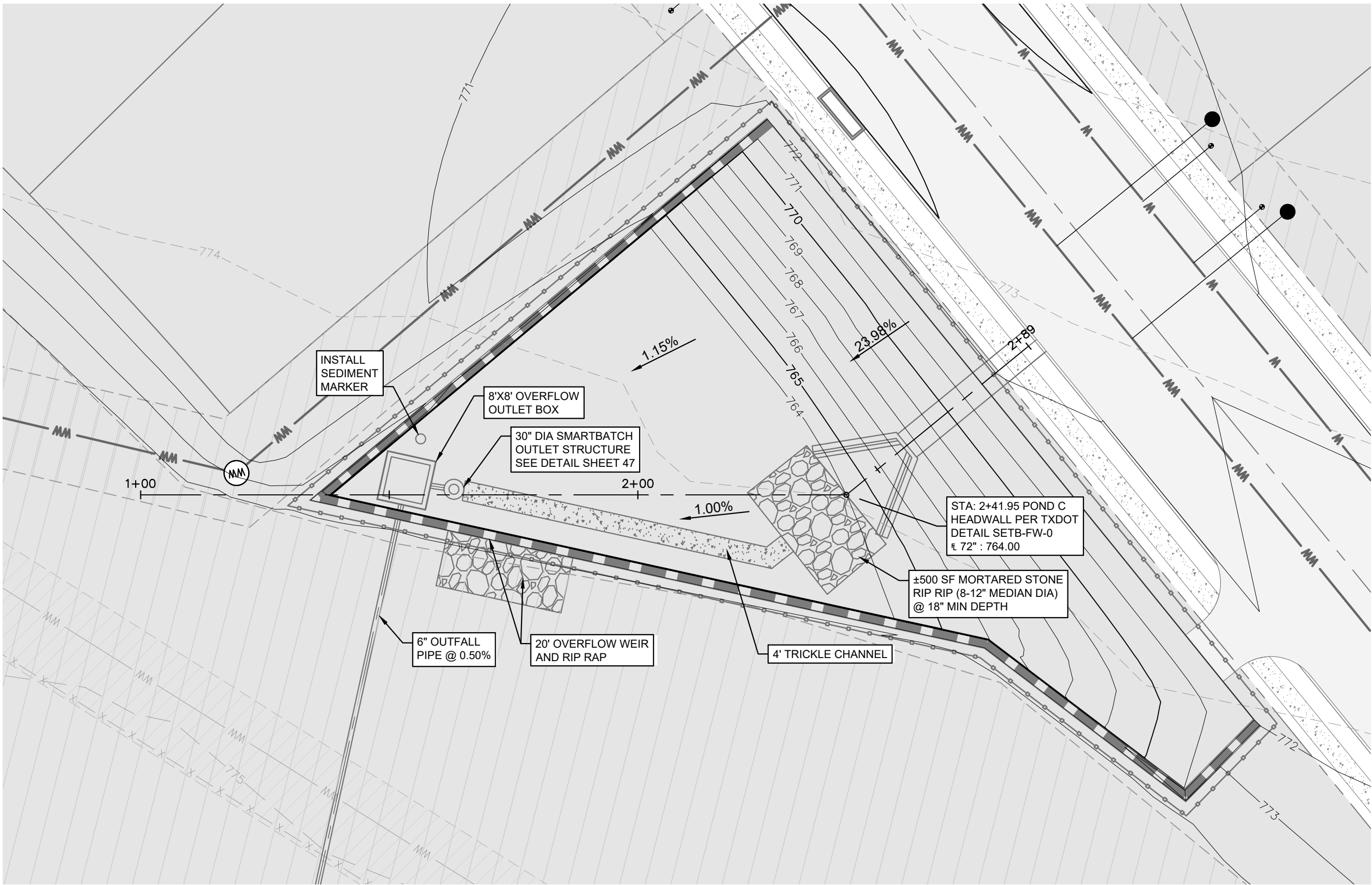
WQ POND - B

**WALSH TRAILS
SECTION 5 & 6**
CITY OF CEDAR PARK
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
44 OF 89

2024-1-SI

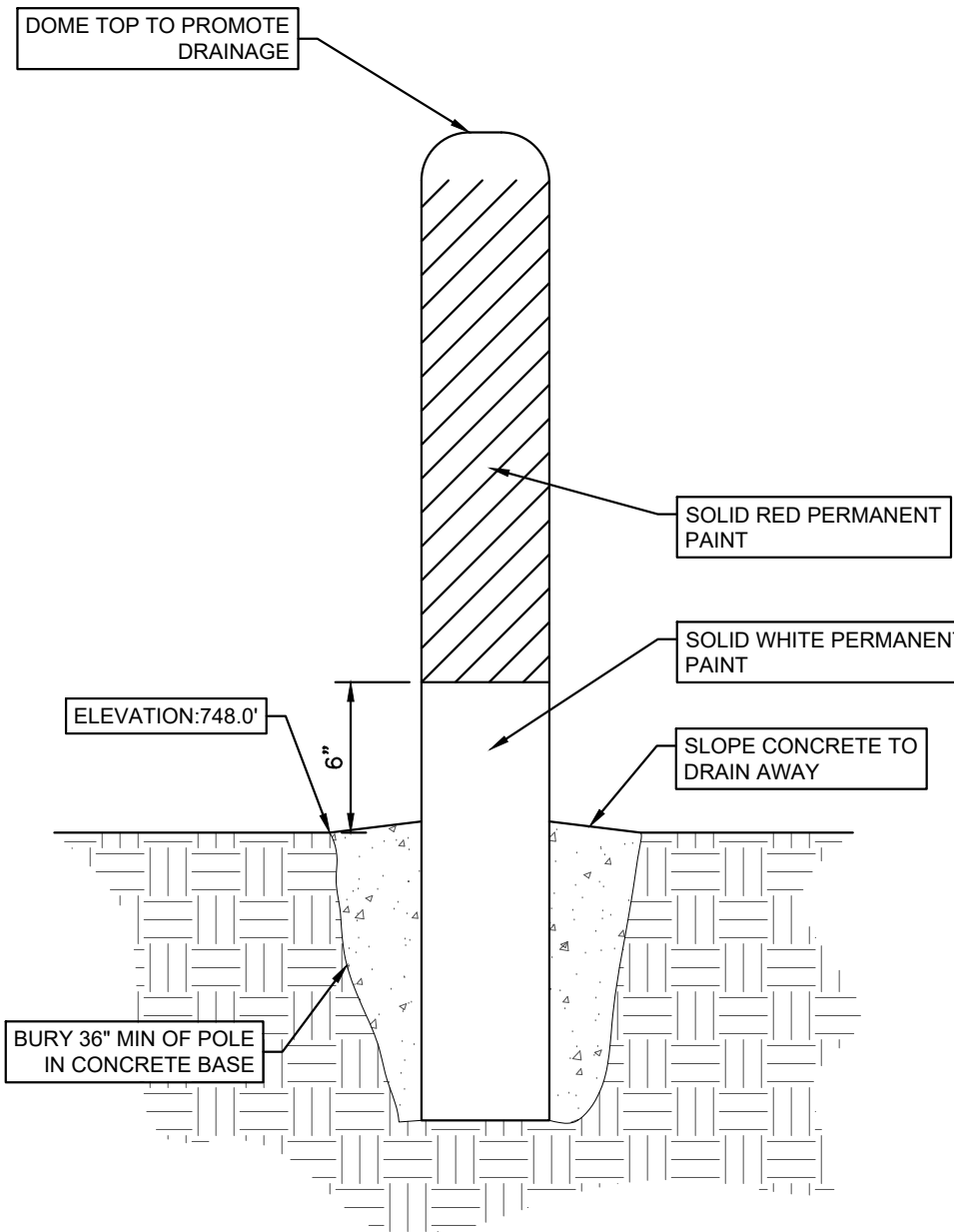
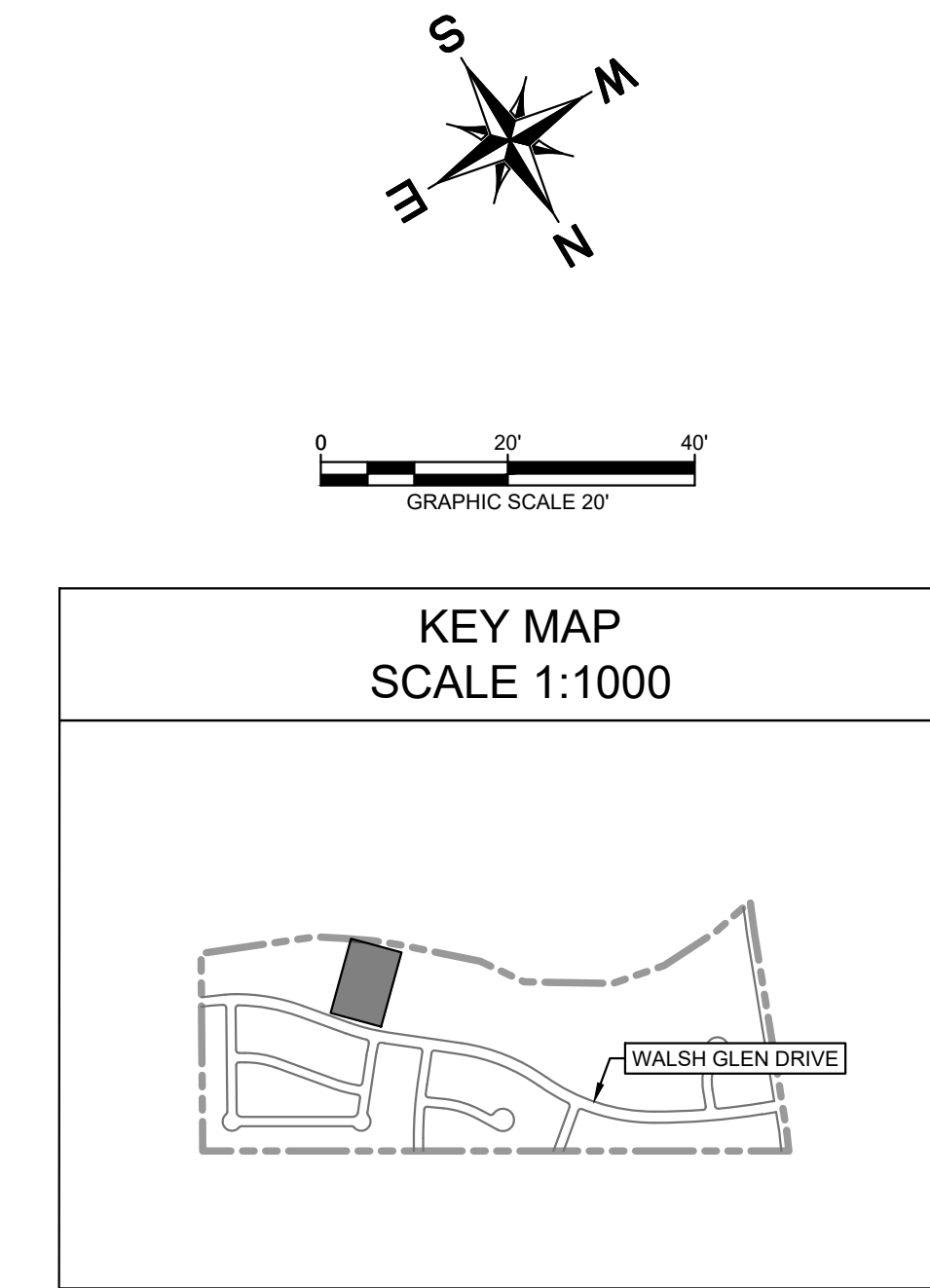
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OUTLET CONTROL STRUCTURE
PER TXDOT PRESTD09-20

N.T.S.

Water Quality Pond Stage Storage				
Stage (ft) (Elevation)	Area (sf)	Storage Volume (cf)	Discharge (CFS)	Event
763.00	0.00	0.00	0.20	-
764.00	4149.44	1355.00	0.20	-
765.00	4618.26	5741.48	0.20	-
766.00	5092.20	10594.57	0.20	-
767.00	5601.45	15935.92	0.20	-
768.00	6189.02	21827.11	0.20	-
769.00	6841.69	28336.49	0.20	-
770.00	7565.30	35533.85	0.20	-
771.00	8358.16	43489.72	0.20	-
771.50	8765.74	47771.73	0.20	WQSE
771.56	8765.74	47771.73	0.20	100-YR
772.00	9072.92	51339.97	106.61	-



VERTICAL SEDIMENT DEPTH MARKER DETAIL

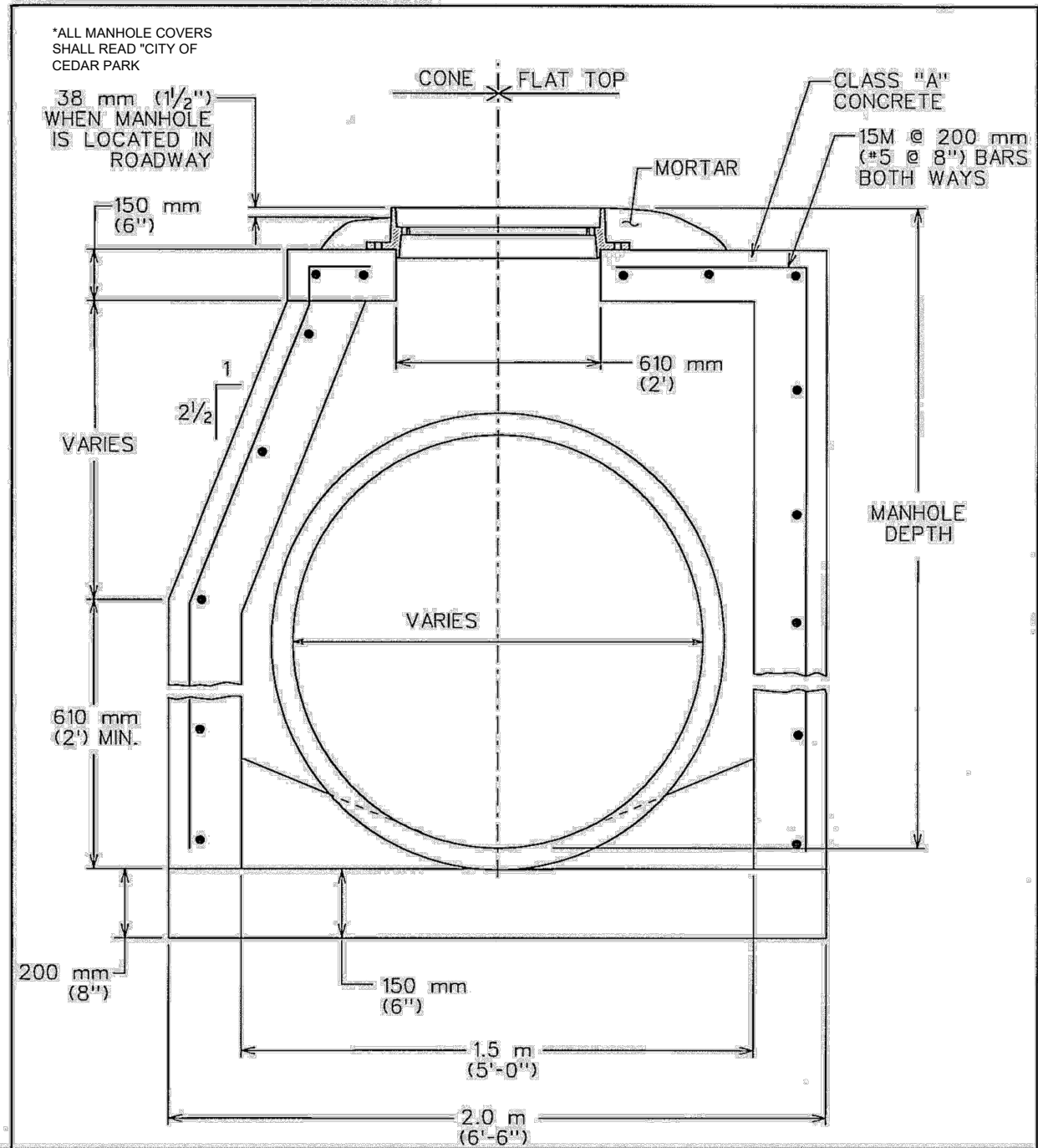
N.T.S.


- # BENCHMARKS
1. MAGNAIL LOCATED ON THE EAST BACK OF CURB OF WALSH GLEN DRIVE, ~400 FEET SOUTHEAST FROM THE INTERSECTION OF WALSH GLEN DRIVE AND ZACHARYS RUN.
N: 1016402.66'
E: 3109440.29'
ELEVATION=778.52'
 2. MAGNAIL LOCATED ON THE SOUTH SIDE OF A SIDEWALK ON THE NORTH SIDE OF BRUSHY CREEK ROAD 4311 FEET EAST OF THE INTERSECTION OF BRUSHY CREEK ROAD AND WASH HILL TRAIL.
N: 10161266.37'
E: 3110195.86'
ELEVATION=773.78'

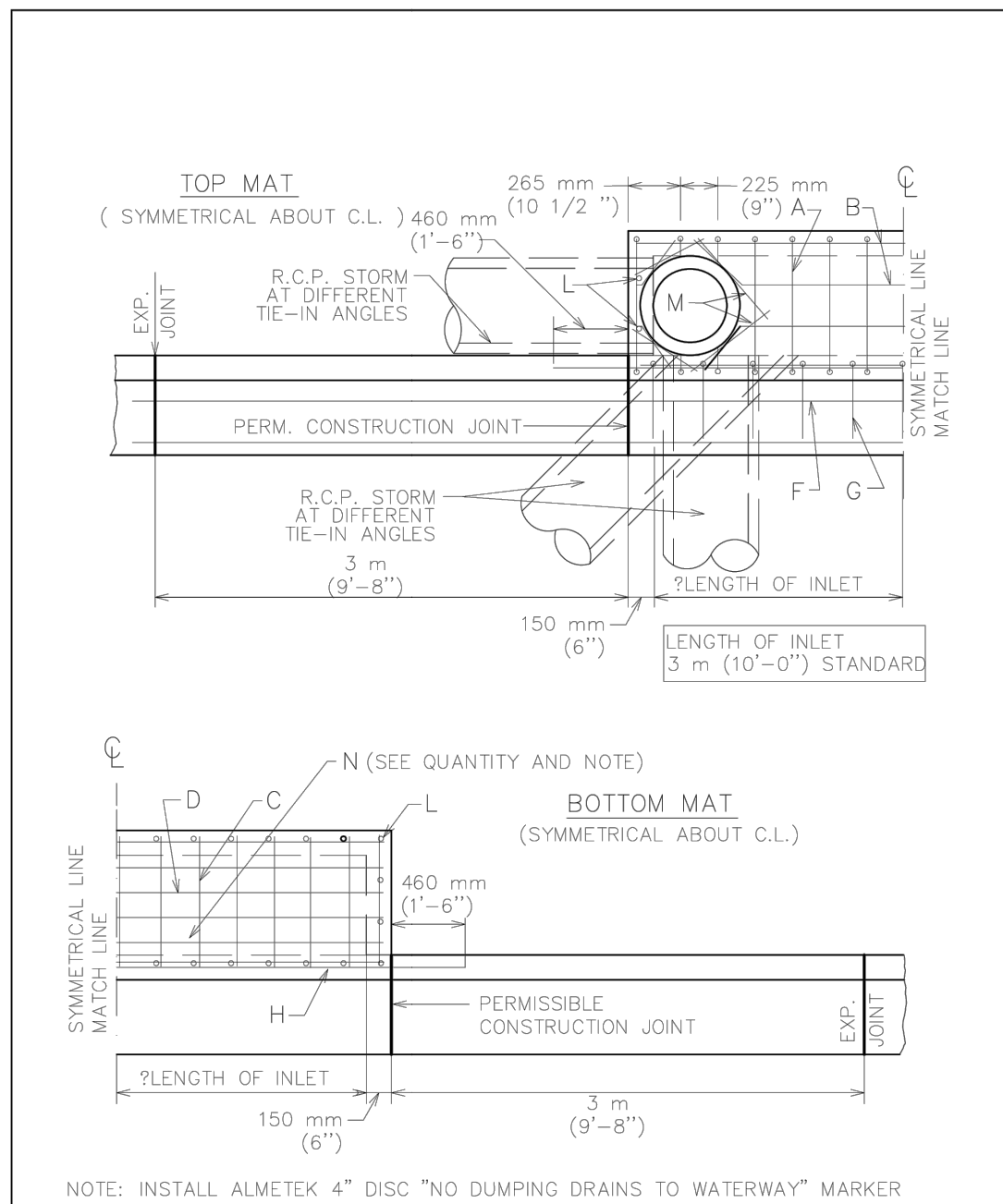



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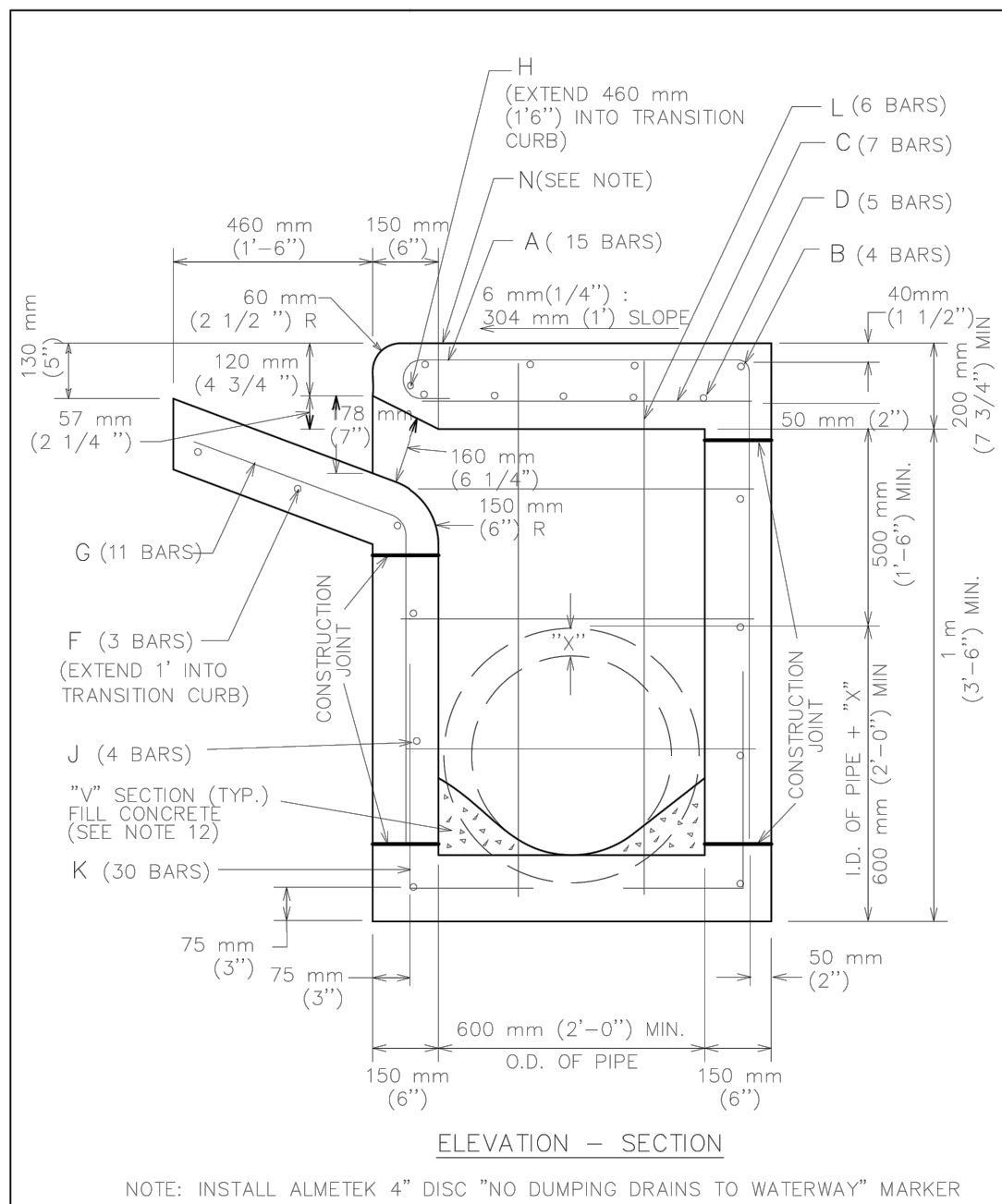
WARNING: CONTRACTOR IS TO
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CITY OF AUSTIN		STORM DRAIN MANHOLE DETAIL	
DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW		STANDARD NO.	
 George E. Howell 2/14/08 ADOPTED		THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	
		506S-11	

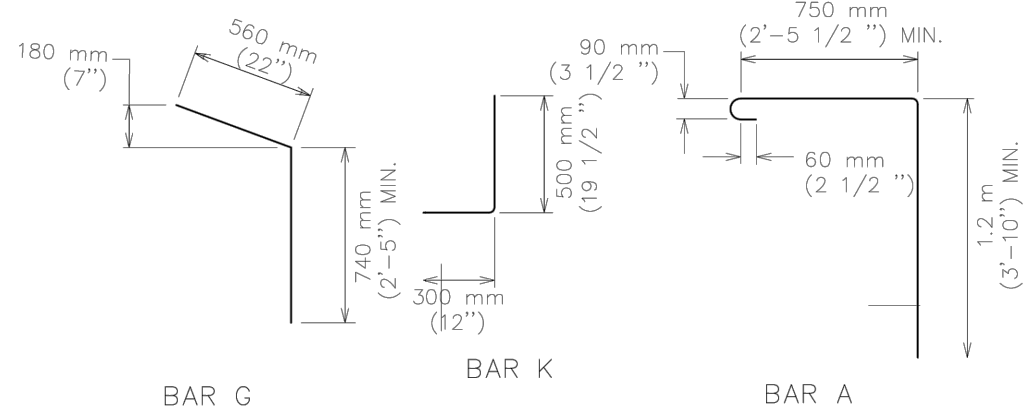



CITY OF CEDAR PARK DEPARTMENT OF PUBLIC WORKS		TYPICAL DETAILS FOR CURB INLET	
	12/03/09 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 1 OF 4



CITY OF CEDAR PARK DEPARTMENT OF PUBLIC WORKS		TYPICAL DETAILS FOR CURB INLET	
	12/03/09 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 2 OF 4

BARS	SIZE	SPACING	NUMBER	LENGTH	WEIGHT
A	4	230mm (9")	15	2 m (7'-0")	73
B	4	250 mm (10")	4	3.25 m (10'-8")	29
C	4	460 mm (18")	7	760 mm (2'-6")	12
D	6	150 mm (6")	5	3.25 m (10'-8")	80
E	4	300 mm (12")	6	760 mm (2'-6")	10
F	4	250 mm (10")	3	4 m (13'-0")	35
G	4	300 mm (12")	11	1.25 m (4'-3")	31
H	6	—	1	4.25 m (14'-0")	20
J	4	300 mm (12")	7	3.25 m (10'-8")	50
K	4	230 mm (9")	30	800 mm (2'-7 1/2")	52
L	4	300 mm (12")	6	1.3 m (4'-4")	17
M	4	—	4	500 mm (1'-8")	AVG. 4
N	ALMETERK 4" DISC "NO DUMPING DRAINS TO WATERWAY" MARKER MODEL SD-S9, SQUARE HOLE OPTION, SYMBOL: FISH, COLOR: BLUE, USE ALMETERK SPECS FOR THICK RESISTANT RIVET SURFACE, MOUNT W/ ADHESIVE FOR DRY CONCRETE INSTALLATION.				
TOTAL STEEL, LB.					413
TOTAL CONCRETE, C.Y.					4.06
* EXCEPT AS SHOWN ON PLAN					



CITY OF CEDAR PARK DEPARTMENT OF PUBLIC WORKS		TYPICAL DETAILS FOR CURB INLET	
	12/03/09 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 3 OF 4

NOTES:

1. ALL CONCRETE SHALL BE CLASS "A"
2. ALL REINFORCING STEEL SHALL BE GRADE 60
3. DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTERS OF BARS.
4. VERTICAL STEEL SHALL BE SPICED (380 mm or 15" MIN. LAP) IN THE LOWER ONE-HALF OF ALL INLET WALLS.5. IN AREAS OF CONFLICT BETWEEN REINFORCING STEEL, PIPES AND MANHOLE FRAME, THE REINFORCEMENT SHALL BE IN ACCORDANCE WITH THE DETAILS AS REQUESTED BY THE ENGINEER.
6. QUANTITIES SHOWN HEREON ARE FOR THE CONTRACTOR'S INFORMATION ONLY. PAYMENT WILL BE MADE FOR EACH INLET OF THE TYPE SPECIFIED, COMPLETE IN PLACE INCLUDING MANHOLE FRAME AND OVER.
7. CHAMFER ALL EXPOSED CORNERS WITH A MINIMUM RADIUS (3/4")
8. MANHOLE FRAME AND COVER SHALL BE IN ACCORDANCE WITH CITY OF AUSTIN STANDARD 5035-1.
9. THE CONTRACTOR MAY PROPOSE ALTERNATE PROCEDURES FOR THE CONSTRUCTION OF INLETS, INCLUDING PRECAST UNITS. PLANS FOR SUCH PROPOSED ALTERNATES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL BEFORE CONSTRUCTION.
10. ALL INLET WALLS SHALL BE FORMED EXCEPT WHERE THE NATURE OF THE SURROUNDING MATERIAL IS SUCH THAT IT CAN BE FORMED TO A SMOOTH FINISH. ALL INLETS IN EXISTING MATERIAL SHALL BE ADJACENT TO EXCAVATION LINES. THE WALL THICKNESS SHALL NOT EXCEED 10 INCHES
11. PAYMENT FOR INLET AT THE CONTRACT PRICE SHALL INCLUDE THE TRANSITION CURB.
12. INVERT OF INLET SHALL BE SLOPED 1:20 WITH FILL CONCRETE, SHAPED AS "V" SECTION
13. NO SPLICING OF REINFORCING STEEL SHALL BE PERMITTED UNLESS OTHERWISE NOTED ON THE PLANS OR PERMITTED IN WRITING BY THE ENGINEER.


CONTRACTOR SHALL SUBMIT A DETAILED MATERIAL AND WORKMANSHIP MODEL SQUARE OBJECT, SYMBOL: FISH, COLOR: BLUE. USE ALUMINUM INSTANT SPECIFICATION FOR THEFT RESISTANT RIVET SURFACE MOUNT W/ADHESIVE FOR DRY CONCRETE

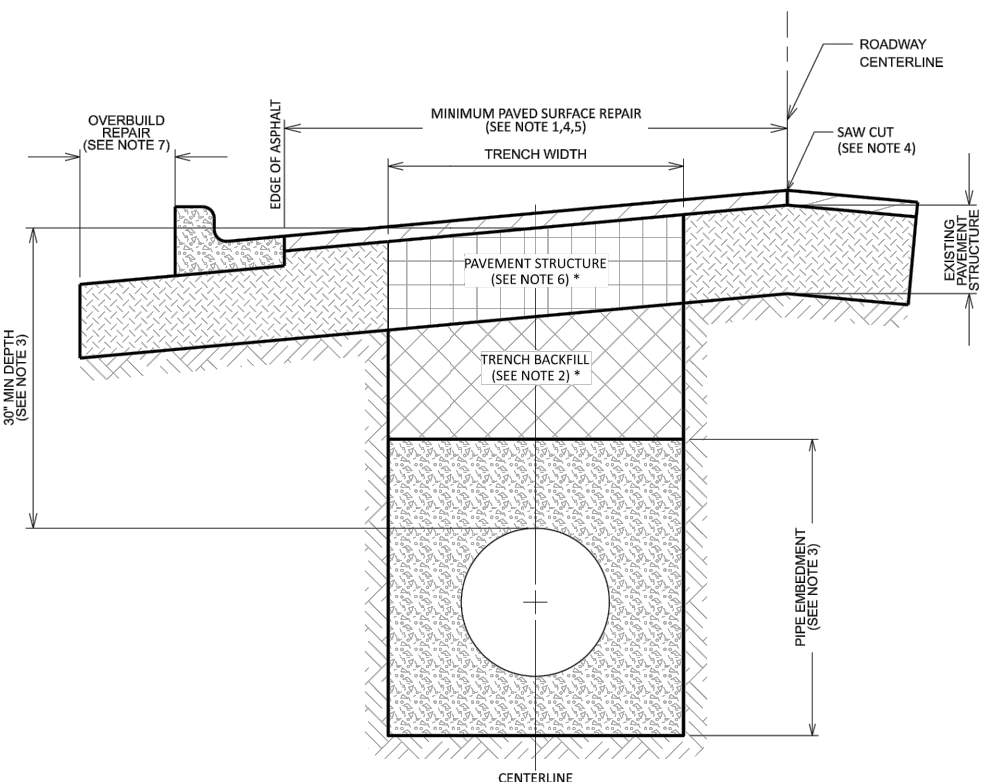
REFERENCES:

FOR EXPANSION JOINT DOWEL AND DOWEL LOCATION DETAILS
SEE STD. 430S-3, "CURB EXPANSION JOINT DOWEL DETAIL"

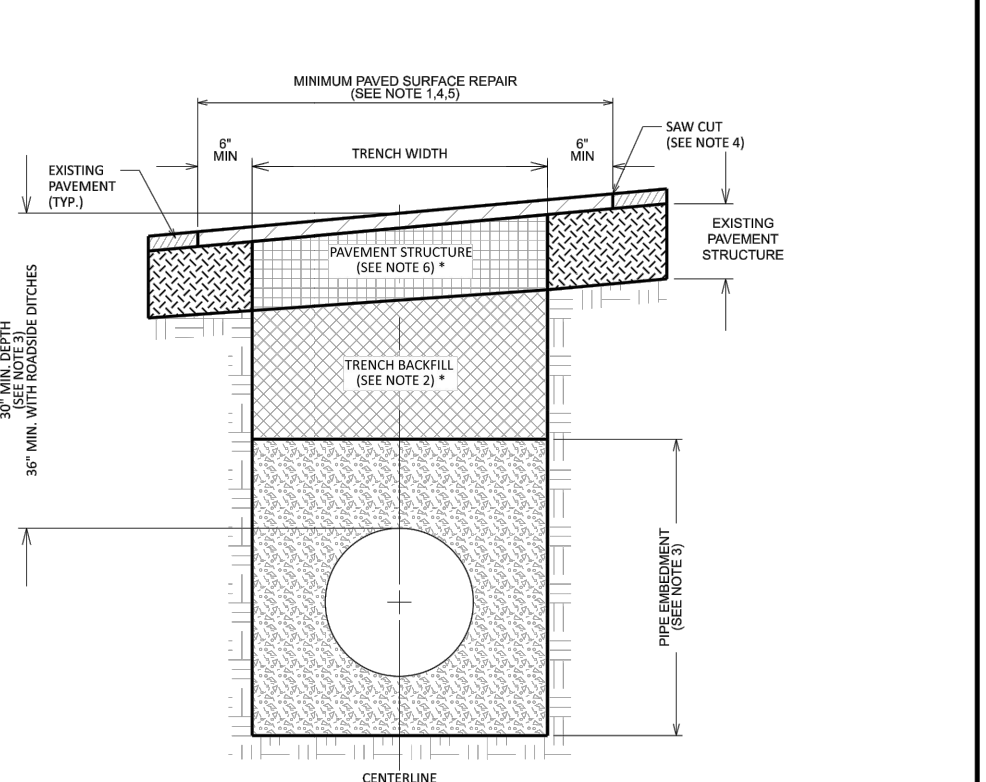
FOR 18" MANHOLE FRAME AND COVER DETAILS
SEE STD. 503S-1, "18" COVER AND FRAME".

ALMETEK "NO DUMPING DRAINS TO WATERWAY" MARKERS
WWW.ALMETEK.COM

CITY OF CEDAR PARK DEPARTMENT OF PUBLIC WORKS		TYPICAL DETAILS FOR CURB INLET	
	12/03/09 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 4 OF 4



1. PAVEMENT SHALL BE HOT MIX ASPHALT (SPECIFICATIONS, TxDOT ITEM 340 AND 341, TYPE D), EXISTING HMAc THICKNESS OR 2" MINIMUM, WHICHEVER IS GREATER. ROLL IN PLACE TO MATCH EXISTING SURFACE, $\frac{1}{4}$ " TOLERANCE.
 2. TRENCH BACKFILL SHALL BE FLEXIBLE BASE, COMPACTED TO 95% OPTIMUM IN 8" LIFTS UNLESS OTHERWISE APPROVED (SPECIFICATIONS, TxDOT ITEM 247, TYPE A, GRADE 2).
 3. PIPE EMBEDMENT (PIPE ENVELOPE) SIZE AND MATERIALS SHALL BE AS SPECIFIED ELSEWHERE BY UTILITY COMPANY AND/OR ITS ENGINEERS. PIPE DEPTH SHALL BE AS SPECIFIED ELSEWHERE PROVIDED THAT MINIMUM DEPTHS ARE MET.
 4. SAW CUT SHALL BE MADE PRIOR TO TRENCH CUT. IF PAVEMENT IS DAMAGED DURING CUT, A NEW SAW CUT SHALL BE MADE BEYOND THE DAMAGED AREA AND NEW PAVEMENT PLACED.
 5. DAMAGE BEYOND THE CENTERLINE OF ROADWAY REQUIRES REPAIR OVER ENTIRE ROADWAY WIDTH.
 6. PAVEMENT STRUCTURE SHALL BE FLEXIBLE BASE, COMPACTED TO 98% OPTIMUM TO MATCH DEPTH OF EXISTING STRUCTURE INCLUDING THE DEPTH OF STABILIZED SUBGRADE.
 7. TRENCHING IN THE FLEXIBLE BASE OVERBURD IS DISCOURAGED, BUT IF DONE MUST BE FLOWABLE FILLED TO THE BOTTOM OF CUTTER AND TORSIONED TO THE TOP OF CURB.
- * PAVEMENT STRUCTURE AND TRENCH BACKFILL ARE PERMITTED TO USE FLOWABLE BACKFILL (CONTROLLED LOW-STRENGTH MATERIAL), WITH COMPRESSIVE STRENGTH NOT LESS THAN 200 PSI AND NOT TO EXCEED 400 PSI.



1. PAVEMENT SHALL BE HOT MIX ASPHALT (SPECIFICATIONS; TxDOT ITEM 340 AND 341, TYPE D). MATCH EXISTING HMAc THICKNESS, OR 2" MINIMUM, WHICHEVER IS GREATER. ROLL IN PLACE TO MATCH EXISTING SURFACE, $\pm \frac{1}{8}$ " TOLERANCE.
2. TRENCH BACKFILL SHALL BE FLEXIBLE BASE, COMPACTED TO 95% OPTIMUM IN 8" LIFTS UNLESS OTHERWISE APPROVED. (SPECIFICATIONS; TxDOT ITEM 247, TYPE A, GRADE 2).
3. PIPE EMBEDMENT (PIPE ENVELOPE) SIZE AND MATERIALS SHALL BE AS SPECIFIED ELSEWHERE BY UTILITY COMPANY AND/OR ITS ENGINEERS. PIPE DEPTH SHALL BE AS SPECIFIED ELSEWHERE PROVIDED THAT MINIMUM DEPTHS ARE MET.
4. SAW CUT SHALL BE MADE PRIOR TO TRENCH CUT. IF PAVEMENT IS DAMAGED DURING CUT, A NEW SAW CUT SHALL BE MADE BEYOND THE DAMAGED AREA AND NEW PAVEMENT PLACED.
5. WHERE ROADSIDE DITCHES (OR DITCHES) ARE CROSSED BY THE UTILITY PIPE, MINIMUM DEPTH TO THE TOP OF THE PIPE FROM THE CENTERLINE ROAD ELEVATION WILL BE 30".
6. PAVEMENT STRUCTURE SHALL BE FLEXIBLE BASE, COMPACTED TO 98% OPTIMUM TO MATCH DEPTH OF EXISTING STRUCTURE INCLUDING THE DEPTH OF STABILIZED SUBGRADE.
- * PAVEMENT STRUCTURE AND TRENCH BACKFILL ARE PERMITTED TO USE FLOWABLE BACKFILL (CONTROLLED LOW-STRENGTH MATERIAL) WITH COMPRESSIVE STRENGTH NOT LESS THAN 400 PSI AND NOT TO EXCEED 400 PSI.

ATTACHMENT N: Inspection, Maintenance, Repair and Retrofit Plan

The inspection and maintenance plan outlines the procedures necessary to maintain the performance of the Permanent Best Management Practices for this project. It should be noted that the plan provides guidelines that may have to be adjusted dependent on site specific and weather-related conditions.

It is the responsibility of the owner to provide the inspections and maintenance as outlined in the plan for the duration of the project. The owner will maintain this responsibility until it is assumed or transferred to another entity in writing. If the property is leased or sold, the responsibility for the maintenance will be required to be transferred through the lease agreement, binding covenants, closing documents, or other binding legal instrument.

Disposal of accumulated silt shall be accomplished following Texas Commission on Environmental Quality guidelines and specifications.

Maintenance records shall be kept on the installation, maintenance, or removal of items necessary for the proper operation of the facilities. All inspections shall be documented.

Inspection and Maintenance For BMPs

Batch detention basins may have somewhat higher maintenance requirements than an extended detention basin since they are active stormwater controls. The maintenance activities are identical to those of extended detention basins with the addition of maintenance and inspections of the automatic controller and the valve at the outlet.

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.

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.

Litter and Debris 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.).

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. A ladder may be required during the inspection process to access the controller box.

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




Responsible Party: Toll Brothers

Mailing Address: 1320 Arrow Point Dr, Suite 401

City, State: Cedar Park, TX Zip: 78613

Telephone: 412-780-2312 Fax: _____

I, the owner, have read and understand the requirements of the attached Inspection and Maintenance Plan for the proposed Permanent Best Management Practices for my project. I acknowledge that I will maintain responsibility for the implementation and execution of the plan until the responsibility is transferred to or assumed by another party in writing through a binding legal instrument.

Signature of Responsible Party  Date 06/24/2024

This Maintenance Plan is based on the TCEQ Edwards Aquifer Technical Guide .

By:  Date 05/28/2024

Benjamin L. Green, P.E.

ATTACHMENT P: Measures for Minimizing Surface Stream Contamination

During construction, standard erosion measures will be used as shown in the construction plans. Runoff from the construction site will be contained by a silt fence until construction is complete. Entry and exit from the site will be through a stabilized construction entrance. The proposed batch detention basin water quality pond system will minimize surface stream contamination by removing 90% of the potential pollutants.

After completion of the project, temporary erosion and sedimentation measures (silt fence and rock berm) will remain in place until vegetative cover is established. Details concerning the erosion/sedimentation protection plan can be found on the Erosion & Sedimentation Control Plans of the construction drawings attached.

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: Benjamin L. Green, P.E.

Date: 05/28/2024

Signature of Customer/Agent:



Regulated Entity Name: Walsh Trails Section 5 & 6

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: solvents, stains/paints, fuels, oils, grease, pesticides, fertilizer, sediment/total suspended solids, trash, paving, concrete curing compound, glue adhesives, joint compound, concrete/painting/brick wash, excavation pump out water, concrete

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: Brazos River Basin

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.

ATTACHMENT A: Spill Response Actions

The following practices will be followed for spill prevention and cleanup:

- Manufacturers' recommended methods for spill cleanup will be maintained on-site in the material data sheets (MSDS) and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.
- Materials and equipment necessary for spill cleanup will be kept in the material storage area onsite. Equipment and materials will include but not be limited to brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust and plastic and metal trash containers specifically for this purpose.
- All spills will be cleaned up immediately after discovery.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- Contact the MS4 Operator, TCEQ (800-832-8224), and the National Response Center (800-424-8802) to inform of any spill of toxic or hazardous material regardless of the size.

The spill prevention plan will be adjusted to include measures to prevent this type of spill from recurring and how to clean up the spill if there is another one. A description of the spill, what caused it, and the cleanup measures will also be included.

Reportable Quantities Link: https://www.tceq.texas.gov/response/spills/spill_rq.html

ATTACHMENT B: Potential Sources of Contamination

No industrial associated activity discharges are expected for this proposed commercial development site. Surface water quality can be affected by disturbance during construction and by development after construction. Soil disturbance from clearing and grubbing and cut / fill operations can lead to discharge of sediment unless adequate temporary erosion control measures are in place. For this project, the use of silt fence, construction entrances, and rock berms will prevent sediment from leaving the site. Siltation collected by the control measures will be cleaned from fences, berms, etc. on a routine schedule as outlined in the SWPPP and contract specifications.

During construction, surface water quality may also be affected by a spill of hydrocarbons or other hazardous substances used in construction. The most likely instances of a spill of hydrocarbons or hazardous substances are:

- a) Refueling construction equipment.
- b) Oil and grease from the asphalt pavement and vehicle traffic.
- c) Performing operator-level maintenance, including adding petroleum, oils, or lubricants.
- d) Normal silt build-up.
- e) Unscheduled or emergency repairs, such as hydraulic fluid leaks.
- f) Trash which becomes loose from subdivision residents.
- g) Fertilizers used in the landscaping around the apartment buildings.

Every effort will be taken to be cautious and prevent spills. In the event of a fuel or hazardous substance spill as defined by the Reportable Quantities Table 1 (page 3) of the TCEQ's Small-Business Handbook for Spill Response (RG-285, June 1997), the contractor is required to clean up the spill and notify the TCEQ as required in RG-285. During business hours report spills to the TCEQ's Austin Regional Office at (512) 339-2929, after business hours call 1-800-832-8224, the Environmental Response Hotline or (512) 463-7727, the TCEQ Spill Reporting Hotline, which is also answered 24 hours a day.

After construction is complete, impervious cover for the tract of land is the major reason for degradation of water quality. Impervious cover includes the building foundation, street pavement and concrete sidewalks. Oil and fuel discharge from vehicles is anticipated. The proposed permanent BMPs on this project will help mitigate these occurrences.

ATTACHMENT C: Sequence of Major Activities

SEQUENCE OF CONSTRUCTION:

- 1) **INSTALL EROSION CONTROLS PER APPROVED PLANS.**
 - a) This activity effects less than 0.25-acres of the site, as its mostly concentrated at the borders of the site. The erosion controls will be in place for the duration of the construction and until the permanent BMPs have been established.
- 2) **HOLD PRE-CONSTRUCTION CONFERENCE.**
- 3) **DEMOLISH, REMOVE AND DISPOSE OF PROPERLY ALL EXISTING IMPROVEMENTS SHOWN TO BE REMOVED PER PLANS.**
 - a) This activity will effect approximately 0.1-acres of the site, as approximately 1/3 of the site will remain as the existing condition. The erosion controls initially placed will be maintained through this activity.
- 4) **ROUGH-CUT ALL REQUIRED OR NECESSARY PONDS. EITHER THE PERMANENT OUTLET STRUCTURE OR A TEMPORARY OUTLET MUST BE CONSTRUCTED PRIOR TO DEVELOPMENT OF ANY EMBANKMENT OR EXCAVATION THAT LEADS TO PONDING CONDITIONS. THE OUTLET SYSTEM SHALL BE PROTECTED FROM EROSION AND SHALL BE MAINTAINED THROUGHOUT THE COURSE OF CONSTRUCTION UNTIL FINAL RESTORATION IS ACHIEVED.**
 - a) This activity will continue to effect the 1.0-acres of the site. This activity is preparing the site for the designed drainage condition (grading and ponds). The erosion controls initially placed will be maintained through this activity.
- 5) **BEGIN CONSTRUCTION OF UNDER GROUND UTILITY, PAVING AND BUILDING, INSTALL INLET EROSION/SEDIMENTATION PROTECTION.**
 - a) This activity will effect approximately 1.5-acres and the erosion controls measures initially placed will remain.
- 6) **COMPLETE PERMANENT EROSION CONTROL AND SITE RESTORATION. REMOVE TEMPORARY EROSION/SEDIMENTATION CONTROLS AND TREE PROTECTION. RESTORE ANY AREAS DISTURBED DURING REMOVAL OF EROSION/SEDIMENTATION CONTROLS.**
 - a) This activity will effect approximately 0.2 acres and includes placement of the permanent BMPs. The temporary BMPs will only be removed once the permanent BMPs have been established.
- 7) **PROJECT ENGINEER INSPECTS JOB AND WRITES LETTER OF CONCURRENCE TO THE PERMITTING AUTHORITY, FINAL INSPECTION WILL BE SCHEDULED UPON RECEIPT OF THE LETTER.**
- 8) **REMOVE ALL TRASH AND DEBRIS FROM THE SITE AND DISPOSE OF LEGALLY.**

ATTACHMENT D: Temporary Best Management Practices and Measures

As shown in the erosion and sediment control plan, to protect surface streams during construction activities silt fence will be placed on the downslope along the property line where construction activities end. In addition, a construction entrance will be utilized to filter stormwater through the rock material, inlet protection will be placed at installed inlets and rock berms will be placed in the drainage culvert to the east of the site to protect the surface streams further from any sediment that does make it through the other BMP controls.

ATTACHMENT E: Structural Practices

The plan for temporary structural controls on this site include placing silt fence at the down slope of the site that will collect sediment prior to entering a stream. This will allow for the sediment to be clean out for continued effective usage of the silt fence.

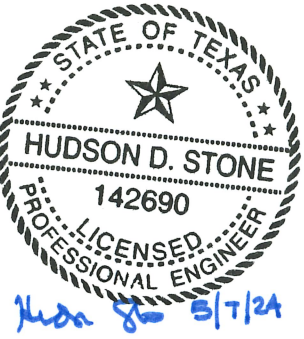


ATTACHMENT F: Drainage Area Map

FEMA FIRM PANELS:
48491C0488F - 12/20/2019
48491C0470F - 12/20/2019

Kimley»Horn

1400 Woodloch Forest Drive, Suite 225
The Woodlands, TX 77380
Phone: (281) 475-2816
TBPE FIRM No. 928



WALSH TRAILS
CITY OF CEDAR PARK, TX

EFFECTIVE CONDITION
DRAINAGE AREA MAP

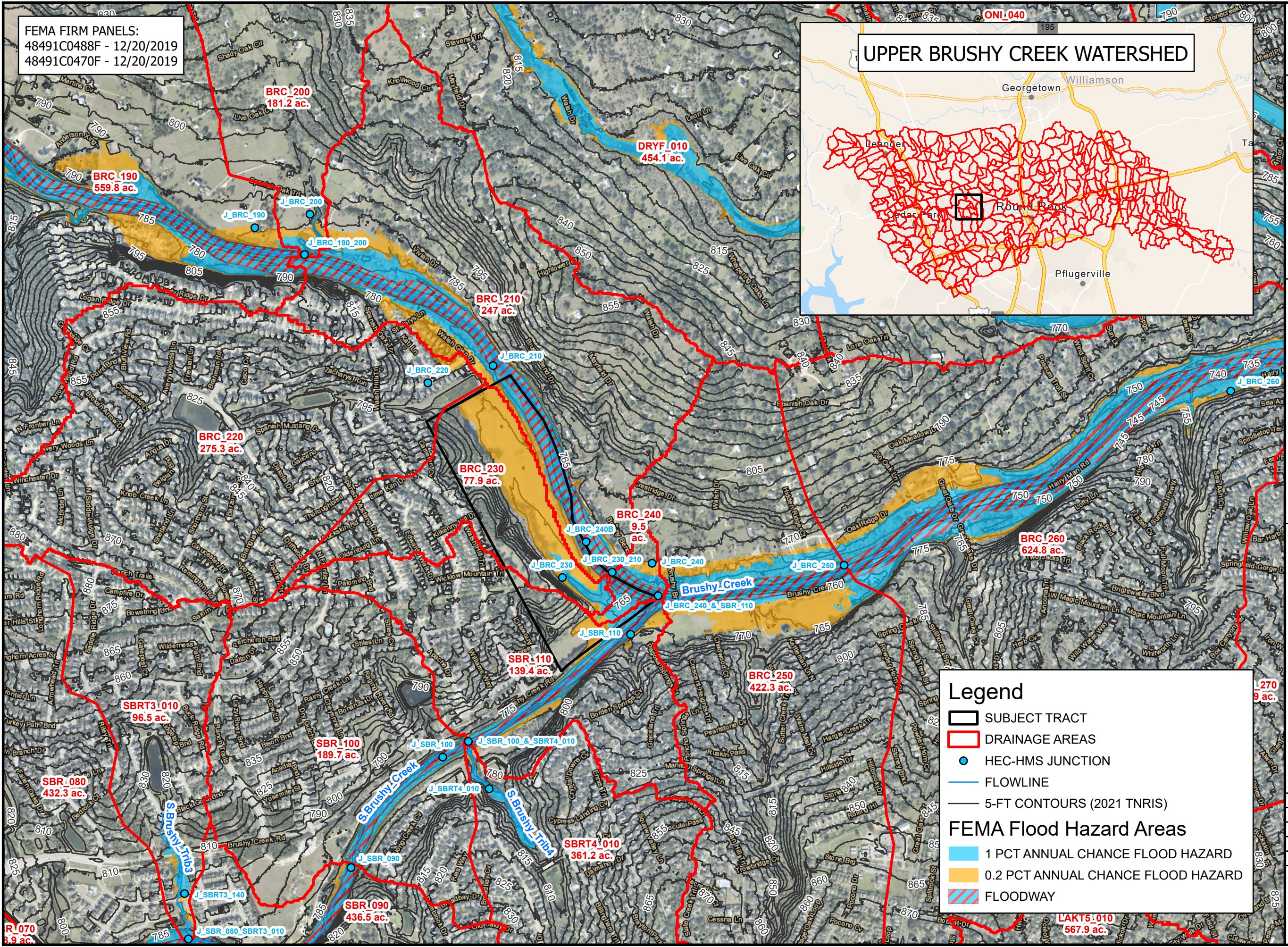
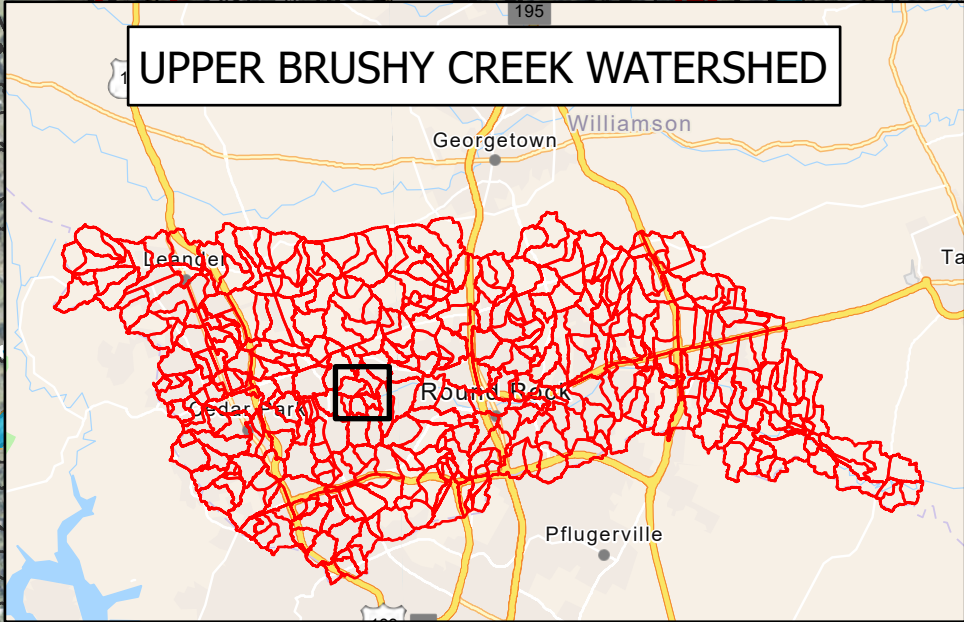
PROJ NO.:	069285504
DATE:	MARCH 2024
DESIGN:	SPH
DRAWN:	SPH
CHECKED:	HDS



1 inch = 1,000 feet

SHEET
2

UPPER BRUSHY CREEK WATERSHED



Legend

- SUBJECT TRACT
- DRAINAGE AREAS
- HEC-HMS JUNCTION
- FLOWLINE
- 5-FT CONTOURS (2021 TNRS)

FEMA Flood Hazard Areas

- 1 PCT ANNUAL CHANCE FLOOD HAZARD
- 0.2 PCT ANNUAL CHANCE FLOOD HAZARD
- FLOODWAY

FEMA FIRM PANELS:
48491C0488F - 12/20/2019
48491C0470F - 12/20/2019

UPPER BRUSHY CREEK WATERSHED

Legend

- SUBJECT TRACT
- REVISED DRAINAGE AREAS
- EFFECTIVE DRAINAGE AREAS
- HEC-HMS JUNCTION
- HEC-HMS REACH
- FLOWLINE
- 5-FT CONTOURS (2021 TNRI5)

FEMA Flood Hazard Areas

- 1 PCT ANNUAL CHANCE FLOOD HAZARD
- 0.2 PCT ANNUAL CHANCE FLOOD HAZARD
- FLOODWAY

Map Labels:

- BRC_190 559.8 ac.
- BRC_200 181.2 ac.
- DRYF_010 454.1 ac.
- BRC_210 247 ac.
- BRC_220 274.9 ac.
- BRC_230 32.4 ac.
- SITE 59.2 ac.
- BRC_240 8.3 ac.
- BRC_250 422.3 ac.
- BRC_260 624.8 ac.
- BRC_270 551.9 ac.
- SBR_080 432.3 ac.
- SBR_100 189.7 ac.
- SBR_090 436.5 ac.
- SBRT3_010 96.5 ac.
- SBRT4_010 361.2 ac.
- SBRT3_140
- J_SBR_080
- J_SBR_090
- J_SBR_100
- J_SBR_110
- J_SBR_100 & SBRT4_010
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- J_SBR_2190
- J_SBR_2200
- J_SBR_2210
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- J_SBR_2230
- J_SBR_2240
- J_SBR_2250
- J_SBR_2260
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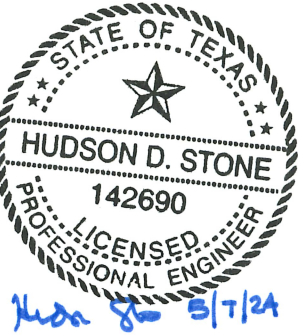
HEET
3

1 inch = 1,000 feet

[illegible]

SITE Impervious Cover Calculations		
Impervious (ac.)	Total (ac.)	Impervious (%)
2.29	59.15	3.87%

Kimley»Horn
1400 Woodloch Forest Drive, Suite 225
The Woodlands, TX 77380
Phone: (281) 475-2816
TBPE FIRM No. 928



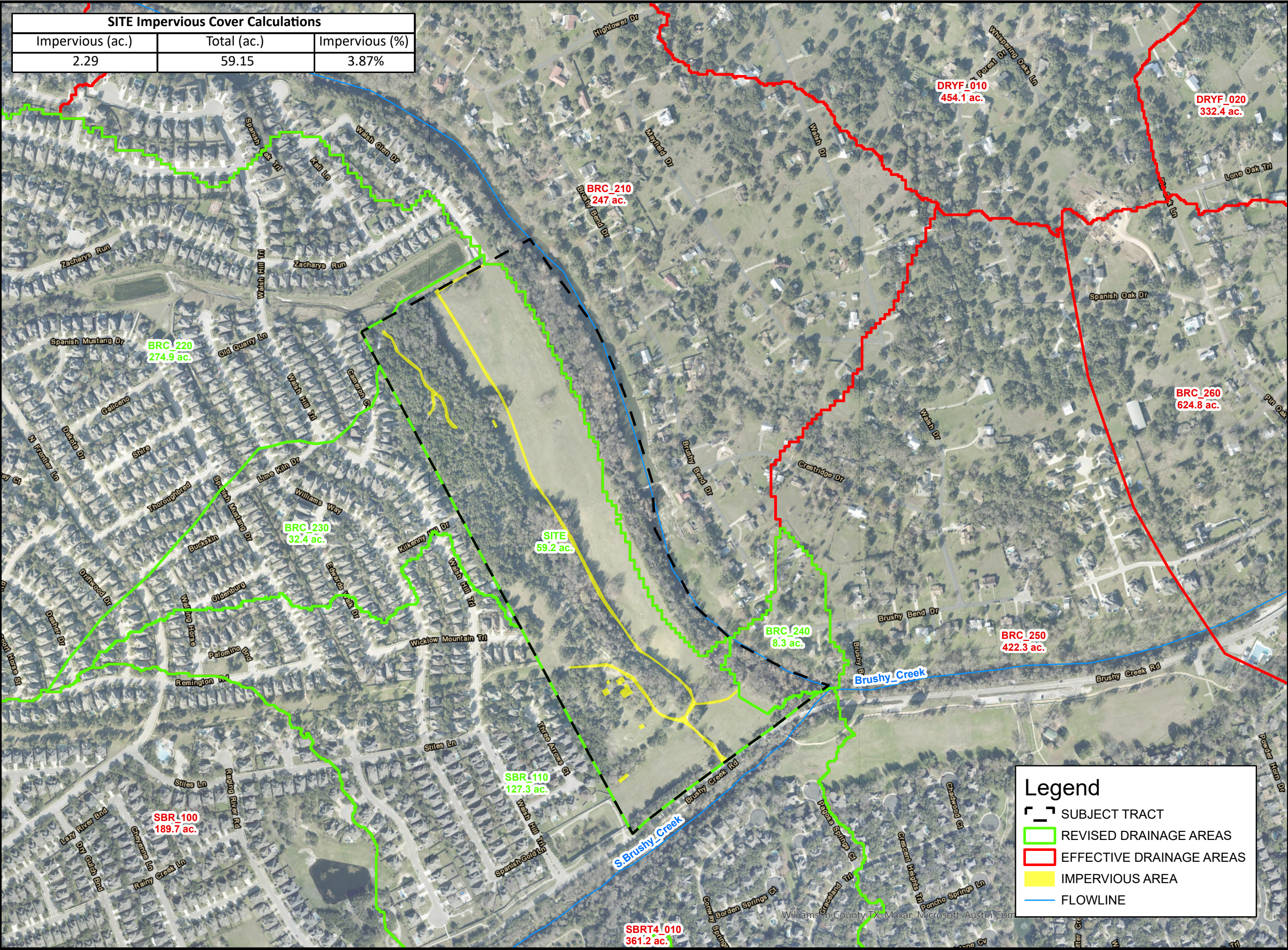
WALSH TRAILS
CITY OF CEDAR PARK, TX

EXISTING SITE
IMPERVIOUS COVER MAP

PROJ NO.:	069285504
DATE:	MARCH 2024
DESIGN:	SPH
DRAWN:	SPH
CHECKED:	HDS



SHEET
4



Legend

SUBJECT TRACT

REVISED DRAINAGE AREAS

EFFECTIVE DRAINAGE AREAS

IMPERVIOUS AREA

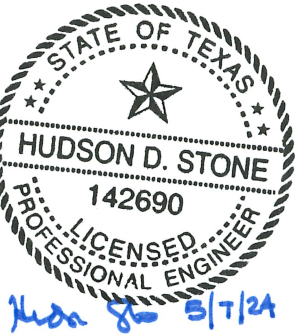
FLOWLINE

Williamson County TX, Maxar, Microsoft, Austin Com

K:\WDL_GIS\069285504 - Walsh Trails\Walsh Trails ArcGIS Pro\Walsh Trails ArcGIS Pro.aprx

SITE Impervious Cover Calculations		
40% Impervious (ac.)	Total (ac.)	Impervious (%)
44.84	59.15	30.32%

Kimley»Horn
1400 Woodloch Forest Drive, Suite 225
The Woodlands, TX 77380
Phone: (281) 475-2816
TBPE FIRM No. 928



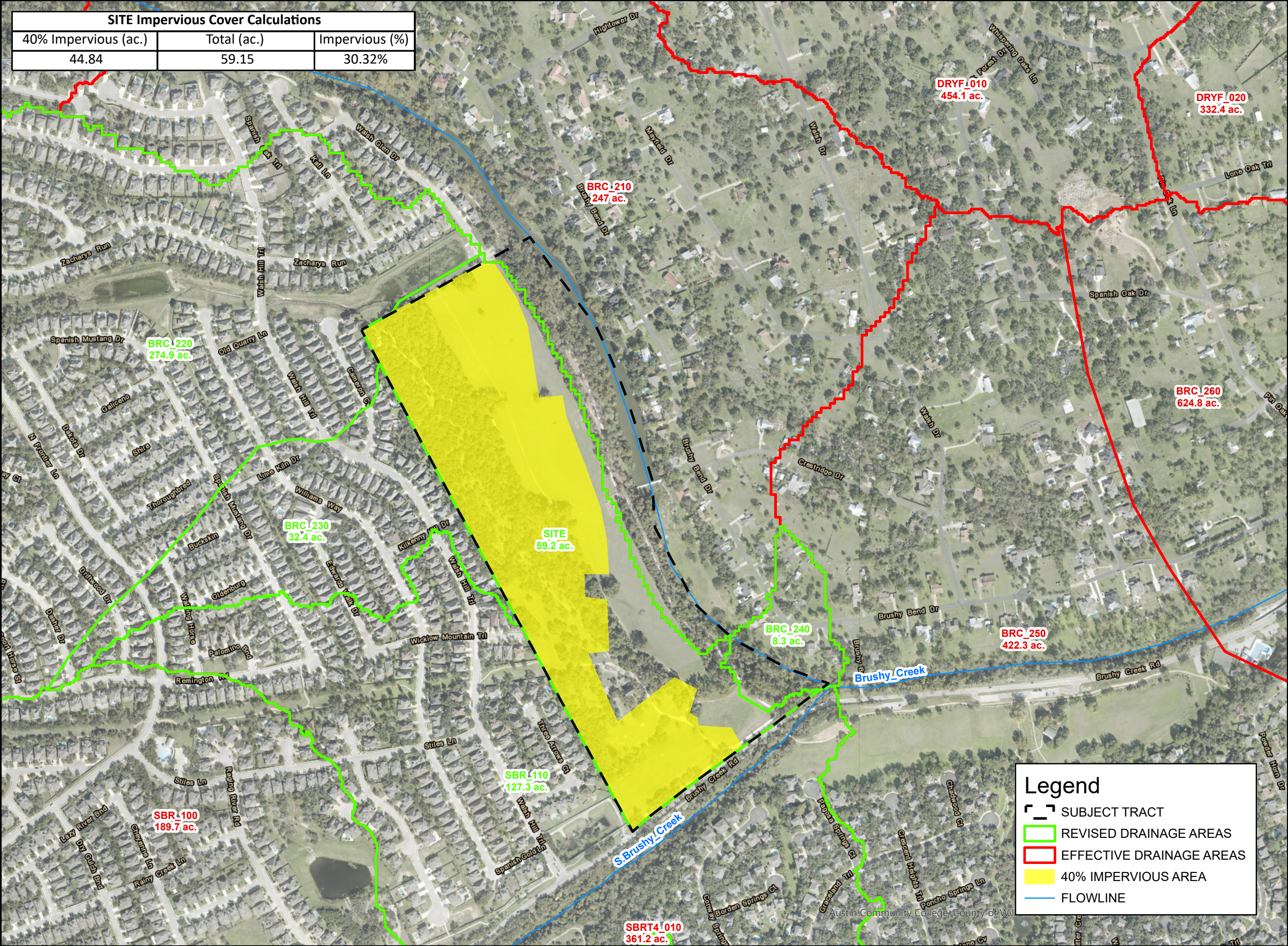
WALSH TRAILS
CITY OF CEDAR PARK, TX

PROPOSED SITE
IMPERVIOUS COVER MAP

PROJ NO.:	069285504
DATE:	APRIL 2024
DESIGN:	SPH
DRAWN:	SPH
CHECKED:	HDS



SHEET
5



Legend

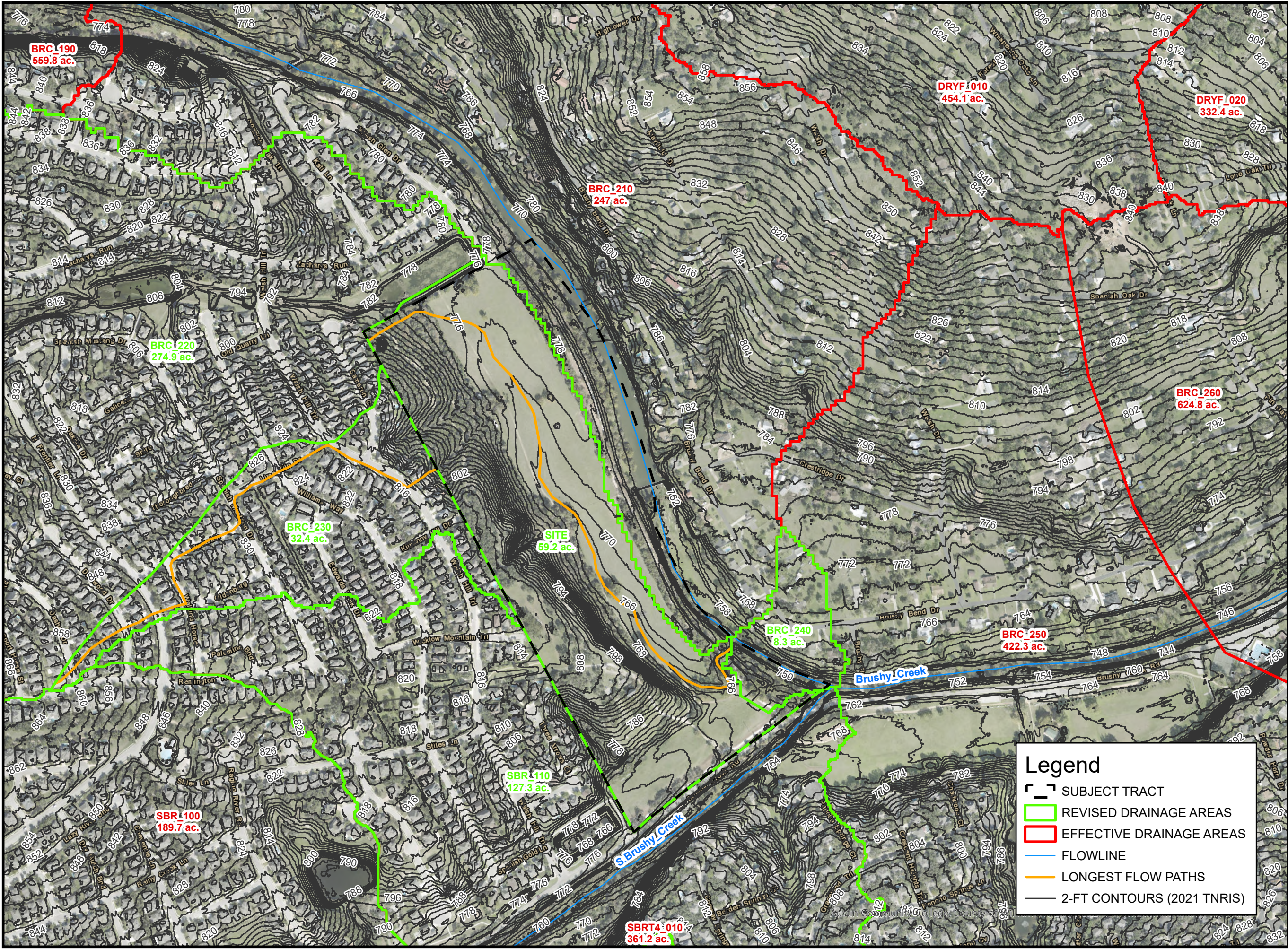
SUBJECT TRACT

REVISED DRAINAGE AREAS

EFFECTIVE DRAINAGE AREAS

40% IMPERVIOUS AREA

FLOWLINE



Kimley»Horn

1400 Woodloch Forest Drive, Suite 225
The Woodlands, TX 77380
Phone: (281) 475-2816
TBPE FIRM No. 928



WALSH TRAILS
CITY OF CEDAR PARK, TX

REVISED EXISTING
LONGEST FLOW PATH MAP

Legend

- SUBJECT TRACT
- REVISED DRAINAGE AREAS
- EFFECTIVE DRAINAGE AREAS
- FLOWLINE
- LONGEST FLOW PATHS
- 2-FT CONTOURS (2021 TNRS)

PROJ NO.:	069285504
DATE:	APRIL 2024
DESIGN:	SPH
DRAWN:	SPH
CHECKED:	HDS



SHEET
6

ATTACHMENT I: Inspection and Maintenance for BMPs

A. Inspection Schedule

1. All disturbed areas, as well as all erosion and sediment control devices, will be inspected according to one of the following schedules:
 - a) at least every seven (7) calendar days and within 24 hours after a rainfall of 0.25" or greater, or
 - b) every seven (7) days on the same day of the week each week, regardless of whether or not there has been a rainfall event since the previous inspection.
2. Inspections will occur on the schedule provided in this plan and any changes made to the schedule must adhere to the following:
 - a) the schedule can change a maximum of one time each month,
 - b) the schedule change must be implemented at the beginning of a calendar month, and
 - c) the reason for the schedule change must be documented in this plan (an inspection schedule form is located below).

B. Inspection Reports

1. Completed inspection reports (see below) will include the following information:
 - a) scope of the inspection,
 - b) date of the inspection,
 - c) name(s) of personnel making the inspection,
 - d) reference to qualifications of inspection personnel,
 - e) observed major construction activities, and
 - f) actions taken as a result of the inspection.
2. All disturbed areas (on and off-site), areas for material storage locations where vehicles enter or exit the site, and all of the erosion and sediment controls that were identified as part this plan must be inspected. The inspection report must state whether the site was in compliance or identify any incidents of non-compliance. The report will be signed by the qualified inspector in accordance with the TPDES general permit and filed in this plan. A sample Inspection Report is included below along with an Inspector Qualification Form. All reports and inspections required by the general construction permit will be completed by a duly authorized representative.
3. The operator should correct any damage or deficiencies as soon as practicable after the inspection, but in no case later than seven (7) calendar days after the inspection. If existing BMPs are modified or if additional BMPs are necessary, an implementation schedule must be described in this plan, and wherever possible, those changes implemented before the next storm event or as soon as practicable. A list of maintenance guidelines are included below.

4. Inspection reports will be kept in the Operator's file, along with this plan, for at least three years from the date that the NOT is submitted to the TCEQ for the construction site.

C. Final Stabilization

Final stabilization of the construction site has been achieved when all soil disturbing activities at the site have been completed, and a uniform (e.g., evenly distributed, without large bare areas) perennial vegetative cover with a density of 70 percent of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures. If a vegetative cover cannot be established, equivalent permanent stabilization measures (such as riprap, gabions, or geotextiles) can be employed. When these conditions have been met, BMPs can be removed from the construction area.

Inspector Qualifications*

Inspector Name: _____

Qualifications (Check as appropriate and provide description):

- ☐ Training Course _____
- ☐ Supervised Experience _____
- ☐ Other _____

Inspector Name: _____

Qualifications (Check as appropriate and provide description):

- ☐ Training Course _____
- ☐ Supervised Experience _____
- ☐ Other _____

Inspector Name: _____

Qualifications (Check as appropriate and provide description):

- ☐ Training Course _____
- ☐ Supervised Experience _____
- ☐ Other _____

**Personnel conducting inspections must be knowledgeable of the general permit, familiar with the construction site, and knowledgeable of the SWP3 for the site.*

INSPECTION SCHEDULE

Inspections must be conducted:

- **Option 1** – at least once every 7 calendar days and within 24 hours of the end of a storm event of 0.25 inch or greater
- **Option 2** – at least once every 7 calendar days, regardless of whether or not there has been a rainfall event since the previous inspection.

Any changes to the schedule are conducted in accordance with the following:

- the schedule is changed a maximum of one time each month,
- the schedule change must be implemented at the beginning of a calendar month, and
- the reason for the schedule change must be documented below.

Date	Schedule Option	Reason for Schedule Change

ACTIONS TO BE TAKEN	RESPONSIBLE PERSON(S)	DUE DATE	DATE COMPLETED	INITIALS

NOTE: These reports will be kept on file as part of the Storm Water Pollution Prevention Plan for at least three years. A copy of the SWP3 will be kept at the site at all times during construction.

CERTIFICATION STATEMENT: *"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 gathered and evaluated 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."*

Name:

Address:

Telephone:

Site Location:

Inspector Signature:

Date:

MAINTENANCE GUIDELINES

1. Below are some maintenance practices to be used to maintain erosion and sediment controls:
 - All control measures will be inspected according to the schedule identified in Appendix E.
 - All measures will be maintained in good working order. The operator should correct any damage or deficiencies as soon as practicable after the inspection, but in no case later than seven (7) calendar days after the inspection.
 - BMP Maintenance (as applicable)
 - Sediment must be removed from sediment traps and sedimentation ponds no later than the time that design capacity has been reduced by 50%. For perimeter controls such as silt fences, berms, etc., the trapped sediment must be removed before it reaches 50% of the above-ground height.
 - Silt fence will be inspected for depth of sediment, tears, to see if the fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground.
 - Drainage swale will be inspected and repaired as necessary.
 - Inlet control will be inspected and repaired as necessary.
 - Check dam will be inspected and repaired as necessary.
 - Straw bale dike will be inspected and repaired as necessary.
 - Diversion dike will be inspected and any breaches promptly repaired.
 - Temporary and permanent seeding and planting will be inspected for bare spots, washouts, and healthy growth.
 - If sediment escapes the site, accumulations must be removed at a frequency that minimizes off-site impacts, and prior to the next rain event, if feasible. If the permittee does not own or operate the off-site conveyance, then the permittee must work with the owner or operator of the property to remove the sediment.
 - Locations where vehicles enter or exit the site must be inspected for evidence of off-site sediment tracking.
2. To maintain the above practices, the following will be performed:
 - Maintenance and repairs will be conducted before the next anticipated storm event or as necessary to maintain the continued effectiveness of storm water controls. Following an inspection, deficiencies should be corrected no later than seven (7) calendar days after the inspection.
 - Any necessary revisions to the SWP3 as a result of the inspection must be completed within seven (7) calendar days following the inspection. If existing BMPs are modified or if additional BMPs are necessary, an implementation schedule must be described in the SWP3 and wherever possible those changes implemented before the next storm event.
 - Personnel selected for inspection and maintenance responsibilities must be knowledgeable of the general permit, familiar with the construction site, and knowledgeable of the SWP3 for the site.

ATTACHMENT J: Schedule of Interim and Permanent Soil Stabilization Practices

Construction Activity Schedule

Activities	Start Date	Finish Date
1.Demolition (0.1-acres): Silt fence protection, tree protection, rock berm		
2.Rough Grading (1.0-acres): Construction entrance/exit shall be installed and all prior erosion control measures installed above to be maintained as necessary during rough grading.		
3.Utility Installation (>0.25-acres): All prior erosion control measures installed above to be maintained as necessary during utility installation, inlet protection shall be installed as storm drainage system is constructed.		
4.Building Construction (2.5-acres): All prior erosion control measures installed above to maintained as necessary during construction.		
5.Paving (~1.5-acres): All prior erosion control measures installed above to be maintained as necessary during paving and throughout the remainder of the project.		
6.Final Grading/Soil Stabilization/Landscaping (~0.8-acres): All temporary erosion control measures to be removed at the conclusion of the project once final stabilization has been achieved. All affected storm sewer inlets and post development BMPs shall be cleaned prior to site completion.		

*Construction activity sequences for linear projects may be conducted on a rolling basis. As a result, construction activities may be at different stages at different locations in the project area. The Contractor is required to complete and update the schedule and adjust as necessary.

*Bare soils should be seeded or otherwise stabilized within 14 calendar days after final grading or where construction activity has temporarily ceased for more than 21 days.

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

I _____ Christopher Walsh _____
Print Name

Authorized Signatory _____
Title - Owner/President/Other
of _____ Walsh Brushy Creek Ranch LP _____
Corporation/Partnership/Entity Name
have authorized _____ Benjamin Green, P.E. _____
Print Name of Agent/Engineer
of _____ Kimley-Horn and Associates, Inc. _____
Print Name of Firm

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

I also understand that:

1. The applicant is responsible for compliance with 30 Texas Administrative Code Chapter 213 and any condition of the TCEQ's approval letter. The TCEQ is authorized to assess administrative penalties of up to \$10,000 per day per violation.
2. For those submitting an application who are not the property owner, but who have the right to control and possess the property, additional authorization is required from the owner.
3. Application fees are due and payable at the time the application is submitted. The application fee must be sent to the TCEQ cashier or to the appropriate regional office. The application will not be considered until the correct fee is received by the commission.
4. A notarized copy of the Agent Authorization Form must be provided for the person preparing the application, and this form must accompany the completed application.
5. No person shall commence any regulated activity on the Edwards Aquifer Recharge Zone, Contributing Zone or Transition Zone until the appropriate application for the activity has been filed with and approved by the Executive Director.

SIGNATURE PAGE:

Christopher Walsh
Applicant's Signature

5/30/24
Date

THE STATE OF Texas §

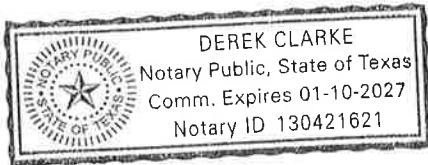
County of Williamson §

BEFORE ME, the undersigned authority, on this day personally appeared Christopher Walsh 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 30 day of May, 2024

[Signature]
NOTARY PUBLIC

Derek Clarke
Typed or Printed Name of Notary



MY COMMISSION EXPIRES: 1-10-2027

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: Walsh Trails Section 5 & 6

Regulated Entity Location: 4001 Brushy Creek Rd, Cedar Park, TX 78613

Name of Customer: Walsh Brushy Creek Ranch LP

Contact Person: Christopher Walsh

Phone: 512-917-4004

Customer Reference Number (if issued):CN _____

Regulated Entity Reference Number (if issued):RN _____

Austin Regional Office (3373)

☐ Hays

☐ Travis

☒ Williamson

San Antonio Regional Office (3362)

☐ Bexar

☐ Medina

☐ Uvalde

☐ Comal

☐ Kinney

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

☐ Austin Regional Office

☐ San Antonio Regional Office

☒ Mailed to: TCEQ - Cashier

☐ Overnight Delivery to: TCEQ - Cashier

Revenues Section

Mail Code 214

P.O. Box 13088

Austin, TX 78711-3088

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

<i>Type of Plan</i>	<i>Size</i>	<i>Fee Due</i>
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	73.825 Acres	\$ 6,500
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	Acres	\$
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: 05/28/2024

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

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

Organized Sewage Collection Systems and Modifications

<i>Project</i>	<i>Cost per Linear Foot</i>	<i>Minimum Fee- Maximum Fee</i>
Sewage Collection Systems	\$0.50	\$650 - \$6,500

Underground and Aboveground Storage Tank System Facility Plans and Modifications

<i>Project</i>	<i>Cost per Tank or Piping System</i>	<i>Minimum Fee- Maximum Fee</i>
Underground and Aboveground Storage Tank Facility	\$650	\$650 - \$6,500

Exception Requests

<i>Project</i>	<i>Fee</i>
Exception Request	\$500

Extension of Time Requests

<i>Project</i>	<i>Fee</i>
Extension of Time Request	\$150



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.)		
<input checked="" type="checkbox"/> New Permit, Registration or Authorization (Core Data Form should be submitted with the program application.)		
<input type="checkbox"/> Renewal (Core Data Form should be submitted with the renewal form)	<input type="checkbox"/> Other	
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

SECTION II: Customer Information

4. General Customer Information		5. Effective Date for Customer Information Updates (mm/dd/yyyy)	
<input checked="" type="checkbox"/> New Customer		<input type="checkbox"/> Update to Customer Information	
<input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)		<input type="checkbox"/> Change in Regulated Entity Ownership	
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:	
Christopher Walsh			
7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number (if applicable)
0801707242	32049780391		
11. Type of Customer:	<input type="checkbox"/> Corporation	<input checked="" type="checkbox"/> Individual	Partnership: <input type="checkbox"/> General <input type="checkbox"/> Limited
Government: <input type="checkbox"/> City <input type="checkbox"/> County <input type="checkbox"/> Federal <input type="checkbox"/> State <input type="checkbox"/> Other	<input type="checkbox"/> Sole Proprietorship	<input type="checkbox"/> Other:	
12. Number of Employees		13. Independently Owned and Operated?	
<input checked="" type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input type="checkbox"/> 501 and higher		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
14. Customer Role (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check one of the following			
<input checked="" type="checkbox"/> Owner <input type="checkbox"/> Operator <input type="checkbox"/> Owner & Operator			
<input type="checkbox"/> Occupational Licensee <input type="checkbox"/> Responsible Party <input type="checkbox"/> Voluntary Cleanup Applicant <input type="checkbox"/> Other:			
15. Mailing Address:	4001 Brushy Creek Rd		
	City	Cedar Park	State TX ZIP 78713 ZIP + 4
16. Country Mailing Information (if outside USA)		17. E-Mail Address (if applicable)	
		christopherwalshrr@hotmail.com	
18. Telephone Number	19. Extension or Code	20. Fax Number (if applicable)	
(512) 917-4004		() -	

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)	
<input checked="" type="checkbox"/> New Regulated Entity <input type="checkbox"/> Update to Regulated Entity Name <input type="checkbox"/> 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.)	
Walsh Trails Section 5 & 6	

23. Street Address of the Regulated Entity: <i>(No PO Boxes)</i>	4001 Walsh Brushy Creek							
	City	Cedar Park	State	TX	ZIP	78613	ZIP + 4	
24. County								

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:	North side of Brushy Creek Rd, adjacent to Brushy Creek to the east							
26. Nearest City					State		Nearest ZIP Code	
Cedar Park					TX		78613	
27. Latitude (N) In Decimal:		30.518214			28. Longitude (W) In Decimal:		97.747466	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds			
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)		
1521				236115				
33. What is the Primary Business of this entity? <i>(Do not repeat the SIC or NAICS description.)</i>								
Single-family development								
34. Mailing Address:	4001 Brushy Creek Rd							
	City	Cedar Park	State	TX	ZIP	78613	ZIP + 4	
35. E-Mail Address:		christopherwalshrr@hotmail.com						
36. Telephone Number			37. Extension or Code			38. Fax Number <i>(if applicable)</i>		
(512) 917-4004						() -		

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.

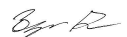
<input type="checkbox"/> Dam Safety	<input type="checkbox"/> Districts	<input type="checkbox"/> Edwards Aquifer	<input type="checkbox"/> Emissions Inventory Air	<input type="checkbox"/> Industrial Hazardous Waste
<input type="checkbox"/> Municipal Solid Waste	<input type="checkbox"/> New Source Review Air	<input type="checkbox"/> OSSF	<input type="checkbox"/> Petroleum Storage Tank	<input type="checkbox"/> PWS
<input type="checkbox"/> Sludge	<input type="checkbox"/> Storm Water	<input type="checkbox"/> Title V Air	<input type="checkbox"/> Tires	<input type="checkbox"/> Used Oil
<input type="checkbox"/> Voluntary Cleanup	<input type="checkbox"/> Waste Water	<input type="checkbox"/> Wastewater Agriculture	<input type="checkbox"/> Water Rights	<input type="checkbox"/> Other:

SECTION IV: Preparer Information

40. Name:	Benjamin L. Green, P.E.		41. Title:	Project Manager
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address	
(512) 646-2243		() -	ben.green@kimley-horn.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:	Kimley-Horn	Job Title:	Project Manager	
Name <i>(In Print)</i> :	Benjamin L. Green, P.E.	Phone:	(512) 646- 2243	
Signature:		Date:	5/28/24	