Project Information:

Owner: Spirit in the Hills Lutheran Church

Subdivision: Bee Creek Ranchettes

Section: One

Lot: 4

Travis County Transportation and Natural Resources has completed the review of the Spirit in the Hills site plan, Development Permit Number 19-25218, on November 3, 2021. In lieu of signature, this statement has been posted on the cover sheet at the request of the reviewer, John Ellis, P.E. of Travis County TNR Development Services. Any questions regarding the completed review by Travis County may be directed to John Ellis at John.Ellis@traviscountytx.gov.

Signature and Permit Block for Lower Colorado River Authority, Highland Lakes Watershed Ordinance

_____

LCRA Date

Note submitted letter of no permit required by LCRA
LCRA Case # 2020-3832, South, 02/12/20

Site Location

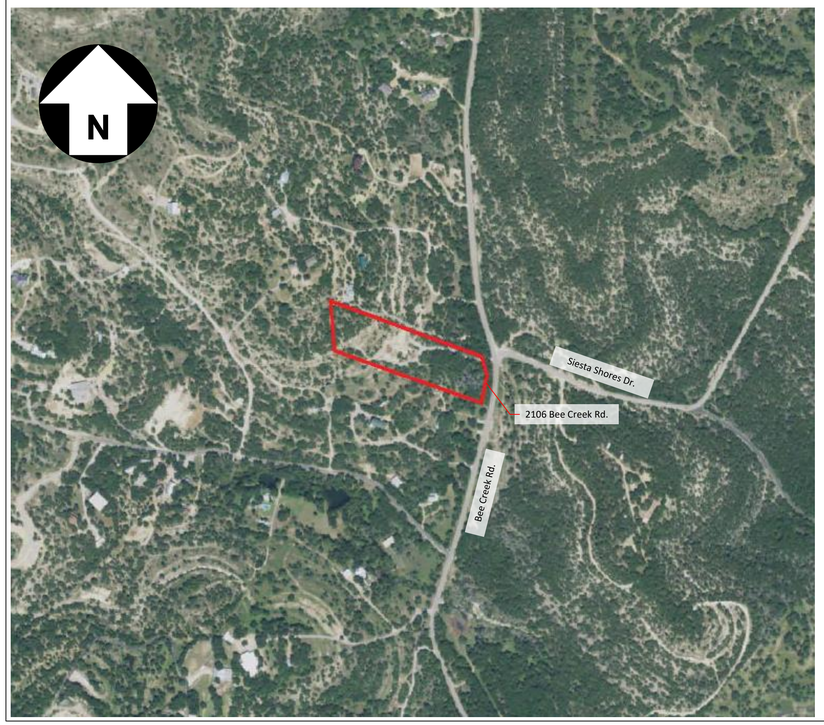


EXHIBIT 482.301B TRAVIS COUNTY STANDARD CONSTRUCTION NOTES FOR SITE DEVELOPMENT

1. Each driveway must be constructed in accordance with Travis County Code Section 482.302(g), and each drainage structure or system must be constructed in accordance with the City of Austin Drainage Criteria Manual, unless other design criteria are approved by Travis County.
2. Before beginning any construction, the owner must obtain a Travis County development permit and post the development permit, the TCEQ Site Notice, and any other required permits at the job site.
3. Construction may not take place within Travis County right-of-way until after the owner has submitted a traffic control plan to Travis County and obtained written approval of the traffic control plan from Travis County.
4. The contractor and primary operator shall follow the sequence of construction and the SWP3 in these approved plans. The contractor and primary operator shall request Travis County inspection at specific milestones in the sequence of the construction of the site development corresponding to the priority inspections specified in Construction Sequencing notes in these approved plans. Development outside the limits of construction specified in the approved permit and construction plans is prohibited.
5. Before beginning any construction, all Storm Water Pollution Prevention Plan (SWP3) requirements shall be met, and the first phase of the temporary erosion control (ESC) plan installed with a SWP3 Inspection Report uploaded to mypermitnow.org. All SWP3 and ESC Plan measures and primary operator SWP3 inspections must be performed by the primary operator in accordance with the approved plans and SWP3 and ESC Plan Notes throughout the construction process.
6. Before starting construction, the owner or contractor or their designated representatives shall submit a request via the mypermitnow.org customer portal for Travis County to request and schedule a mandatory Preconstruction Conference and ESC Inspection. If further assistance is needed, the TNR Planning and Engineering Division staff or TNR Storm Water Management Program staff can be contacted by telephone at 512-854-9383.
7. The contractor shall keep Travis County TNR assigned inspection staff current on the status of site development and utility construction. The contractor shall notify Travis County and request priority inspections through the mypermitnow.org customer portal for Travis County in accordance with the specific milestones in the Construction Sequencing notes in these approved plans.
8. Contour data source: On the ground topographical survey completed on 02/07/20 by All Star Land Surverying
9. Fill material must be managed and disposed of in accordance with all requirements specified in the approved plans, SWP3, and the Travis County Code. The contractor shall stockpile fill and construction materials only in the areas designated on the approved plans and not within the 0.2 percent annual chance floodplain or the 1 percent annual chance floodplain, waterway setback, Critical Environmental Feature setback, or outside the limits of construction. Disposal of solid waste materials, as defined by State law (e.g., litter, tires, decomposable wastes, etc.) is prohibited in permanent fill sites.
10. Before disposing any excess fill material off-site, the contractor or primary operator must provide the County Inspector documentation that demonstrates that all required permits for the proposed disposal site location, including Travis County, TCEQ Notice, and other applicable development permits, have been obtained. The owner or primary operator must revise the SWP3 and ESC Plan if handling or placement of excess fill on the construction site is revised from the existing SWP3. If the fill disposal location is outside Travis County or does not require a development permit, the contractor or primary operator must provide the County Inspector the site address, contact information for the property owner of the fill
11. The design engineer is responsible for the adequacy of the construction plans. In reviewing the construction plans, Travis County will rely upon the adequacy of the work of the design engineer.
12. In the event of any conflicts between the content in the SWP3 Site Notebook and the content in the construction plans approved by Travis County, the construction plans shall take precedence.
13. A minimum of two survey benchmarks shall be set, including description, location, and elevation; the benchmarks should be tied to a Travis County control benchmark when possible.
14. Any existing pavement, curbs, sidewalks, or drainage structures within County right-of-way which are damaged, removed, or silted, will be repaired by the contractor at owner or contractor's expense before approval and acceptance of the construction by Travis County.
15. Call the Texas Excavation Safety System at 8-1-1 at least 2 business days before beginning excavation activities.
16. All storm sewer pipes shall be Class III RCP, unless otherwise noted.
17. Contractor is required to obtain a utility installation permit in accordance with Travis County Code Section 482.901(a)(3) before any construction of utilities within any Travis County right-of-way.
18. This project is located on Flood Insurance Rate Map 48453 CO 195H
19. Temporary stabilization must be performed in all disturbed areas that have ceased construction activities for 14 days or longer, in accordance with the standards described in the SWP3 and ESC Plan Sheet Notes.
20. Permanent site stabilization/re-vegetation must be performed immediately in all site areas which are at final plan grade and in all site areas specified in the approved plans for phased re-vegetation, in accordance with the standards described in the SWP3 and ESC Plan Sheet Notes.
21. All trees within the right-of-way and drainage easements shall be saved or removed in accordance with the approved construction plans. Travis County tree preservation standards in Travis County Code Section 482.973, including installation and maintenance of all specified tree protection measures, must be followed during construction.
22. An Engineer's Concurrence Letter in accordance with Travis County Code Section 482.953 must be submitted via the mypermitnow.org customer portal for Travis County when construction is substantially complete. The Engineer's Concurrence Letter must be submitted before the contractor or primary operator requests a final inspection by Travis County.
23. Site improvements must be constructed in conformance with the engineer's construction plans approved by Travis County. Non-conformance with the approved plans will delay final inspection approval by the County until plan conformance is achieved or any required plan revisions are approved.
24. Final Site Stabilization. All areas disturbed by the construction must be permanently revegetated and all temporary sediment controls and accumulated sedimentation must be removed before the County will issue a Certificate of Compliance for final site stabilization as part of final inspection and project completion. A Developers Contract, as described in the SWP3 and ESC Notes Sheet may be executed with Travis County for conditional acceptance of a project for which has ESC Fiscal Security posted and for which all items are complete

EXHIBIT 482.301G SEQUENCE OF CONSTRUCTION AND PRIORITY INSPECTIONS – SITE DEVELOPMENT

The owner and primary operator must follow this basic sequence of construction for each site development, inclusive of all non-residential site development projects. Within the following sequence of construction are listed Priority Inspections that the owner and primary operator must request from a representative of Travis County's Storm Water Management Program inspection team. Each Priority Inspection must be requested on-line through the mypermitnow.org customer portal for Travis County. The Priority Inspections in this exhibit are consistent with the priority inspections found in the customer portal for the project. For assurance purposes, a second request to Travis County is strongly encouraged by additionally sending an e-mail to env-inspect@traviscountytx.gov.

The sequence for items 1-4 and items 9-12 must not be altered, but the sequence for items 5-8 may be modified with the written approval of the County.

1. ESC Installation. Install all temporary erosion and sediment controls (ESC) and tree protection measures in accordance with the approved ESC Plan sheets and the SWP3.
   a. Have a qualified inspector (as specified in Section 482.934(c)(3) of the Travis County Code) inspect the temporary erosion and sediment controls and prepare a certified SWP3 Inspection Report regarding whether the temporary erosion and sediment controls were installed in conformance with the approved plans;
   b. Upload the qualified inspector's certified SWP3 Inspection Report to the mypermitnow.org customer portal for Travis County; and
   c. Request a mandatory pre-construction meeting with Travis County through the mypermitnow.org customer portal for Travis County giving at least 3 business days notification.
2. Pre-construction Meeting and ESC Inspection. Hold a mandatory pre-construction meeting that addresses the items in EXHIBIT 482.950 and the ESC Pre-construction Inspection by the County and obtain County's approval to start construction. (PRIORITY INSPECTION)
3. Inspect for Compliance with SWP3 and ESC Plan. Maintain and inspect the SWP3 controls and prepare and upload a weekly certified SWP3 Inspection Report that includes the contents listed in EXHIBIT 482.951 to the mypermitnow.org customer portal for Travis County.
4. Construct Sediment Basin(s). Construct any storm water pond(s) first, whenever applicable, to be functional as construction sediment basin(s) before grading and excavating the entire site, as follows:
   a. Clear, grub, and excavate only the site areas and cut and fill quantities necessary to construct the pond(s) in accordance with these approved plans and the minimum standards described in the SWP3 and ESC Plan Sheet Notes for the temporary sediment basin embankments, walls, inflows, outfalls, drainage conveyance measures, sediment controls, and stabilization.
   b. Request County inspection and obtain County's written approval of the temporary sediment basin(s) before proceeding further in the sequence of construction. (PRIORITY INSPECTION)
5. Construct Site Improvements. Begin the primary site clearing, excavation, and construction activities and continue the SWP3 and ESC Plan implementation and maintenance per the approved plans.
6. Construct Driveway Approach and Right-of-way Improvements. Install driveway approach and drainage and road improvements in the County right-of-way per approved plans, when applicable. Request a County Pre-Pour Inspection of the driveway through the mypermitnow.org customer portal for Travis County giving at least 3 business days notification. (PRIORITY INSPECTION).
7. Perform temporary stabilization in all disturbed areas that have ceased construction activities for 14 days or longer.
8. Perform permanent site stabilization/re-vegetation immediately in all site areas at final plan grade and in all site areas specified for phased re-vegetation.
9. Complete Permanent Water Quality Controls. Begin completion of permanent water quality control(s) and install the underdrain per approved plans, when applicable.
   a. Remove construction sediment, re-establish the basin subgrade, and install underdrain piping.
   b. Request County inspection and obtain County's written approval of the underdrain piping installation and associated construction materials (aggregate, filter media, etc.) before covering the underdrain and proceeding with construction of the control. (PRIORITY INSPECTION).
10. Complete construction site improvements and final stabilization per the approved plans.
11. Provide Engineer's Concurrence Letter through the mypermitnow.org customer portal for Travis County when construction is substantially complete and request a final inspection by Travis County. (PRIORITY INSPECTION)
12. Obtain a Certificate of Compliance when all final inspection punch list items, including final site stabilization and removal of temporary sediment controls. If necessary, provide a Developers Contract to the County to request conditional acceptance for use or occupancy of the site with all items completed except re-vegetation growth coverage. Request a re-inspection when re-vegetation coverage is complete. (PRIORITY INSPECTION)

Before Project approval/issuance of the Certificate of Completion (CoC) and Fiscal Release the following must be complete:

1. The owner must complete and submit a PWQC Permit Application to LCRA and a PWQC Maintenance Plan for review and approval. Both documents must be submitted and approved prior to the project Final Acceptance.
2. Upon approval, the Maintenance Plan along with the original notarized document must be filed in the Real Property Records of Travis County. Poof of filing must be provided prior to the project Final Acceptance.
3. The PWQC Maintenance Permit must be signed by the site owner and submitted to LCRA using their provided format.
4. The PWQC Maintenance Plan must be sealed and signed by the design engineer.
5. Upon request a PWQC Permit Application and/or a template for a PWQC Maintenance Plan will be provided or uploaded to the mypermitnow.org account.

Notes continued on next page

List of Drawings and Reports:

Reports and Attachments

Response to 01/29/20 Comments
Response to 02/14/20 Comments
Response to 06/22/20 Comments – Engr
Response to 11/05/20 Comments - Env
Engineering Report dated 05/07/20 (sealed 05/08/20)
ESC Fiscal Cost Estimate Dated 04/20
Environmental Resource Inventory Dated 09/30/19
Balcones Canyonlands Conservation Plan Letter Dated 8/26/19
Phase I Environmental Site Assessment Dated 06/14/19
SWP3 Dated 10/19/19
Letter of no permit required from the LCRA dated 02/12/20
Letter of no permit required from the USACE dated 03/20/20
Copy of Permit from Travis County Fire Marshal
Letter from T.C. Fire Marshal regarding combined building/site.
Original Plat with various dates all 03 of 1970.
Channel Flow Calculations
Detention Basin/Pond Calculations
Map Exhibits
Copy of Permit for Septic System Modifications
Traffic Impact Analysis dates 11/01/20

Schedule your projects pre-construction meeting through the mypermitnow.org account after the initial 3rd Party SWP3 inspection report has been uploaded and all permits and notices have been posted, then follow up with emails to the environmental inspector at env- inspection@traviscountytx.gov and the engineering inspector,
Johnny Anglin, at johnny.anglin@traviscountytx.gov

Total site area within the limits of construction: 2.9 Acres
Total area of disturbance: 1.3 Acres
Total area of new impervious cover: .98 Acres
Name and Segment ID for downstream receiving waters:
Un-named tributary" approximately 2,915' from the edge of the 100 year FEMA floodplain for Colorado River / Lake Travis

Engineer will make periodic inspections and reports of the site status and conditions during construction to ensure compliance with plans and to address any necessary structural compliance items.

All structural field changes require a plan revision approval in writing before commencement of the work.

STATE OF TEXAS
Sidney L. Maxwell II
80644
LICENSED PROFESSIONAL ENGINEER
Date: 11/03/21

The Engineer who prepared these plans is responsible for their adequacy. In approving these plans, Travis County must rely upon the adequacy of the work of the design engineer.

REV.	DESCRIPTION	DATE	BY
A	Added "In Lieu of Signature" statement by TC TNR	11/03/21	SLM

Lake Travis Engineering and Inspection LLC
TBPE Firm No. 10248 / 512 633 7097

2106 Bee Creek Rd.
Cover Sheet – TC FD Submittal

Scale: 1/4" = 1'-0"
Date: 12/06/20
SIZE D | FSCM NO | DWG NO 01A | REV
SCALE | SHEET 1 OF 1

Project Information:

Owner: Spirit in the Hills Lutheran Church

Subdivision: Bee Creek Ranchettes

Section: One

Lot: 4

Copy of Original Recorded Plan for Bee Creek Ranchettes

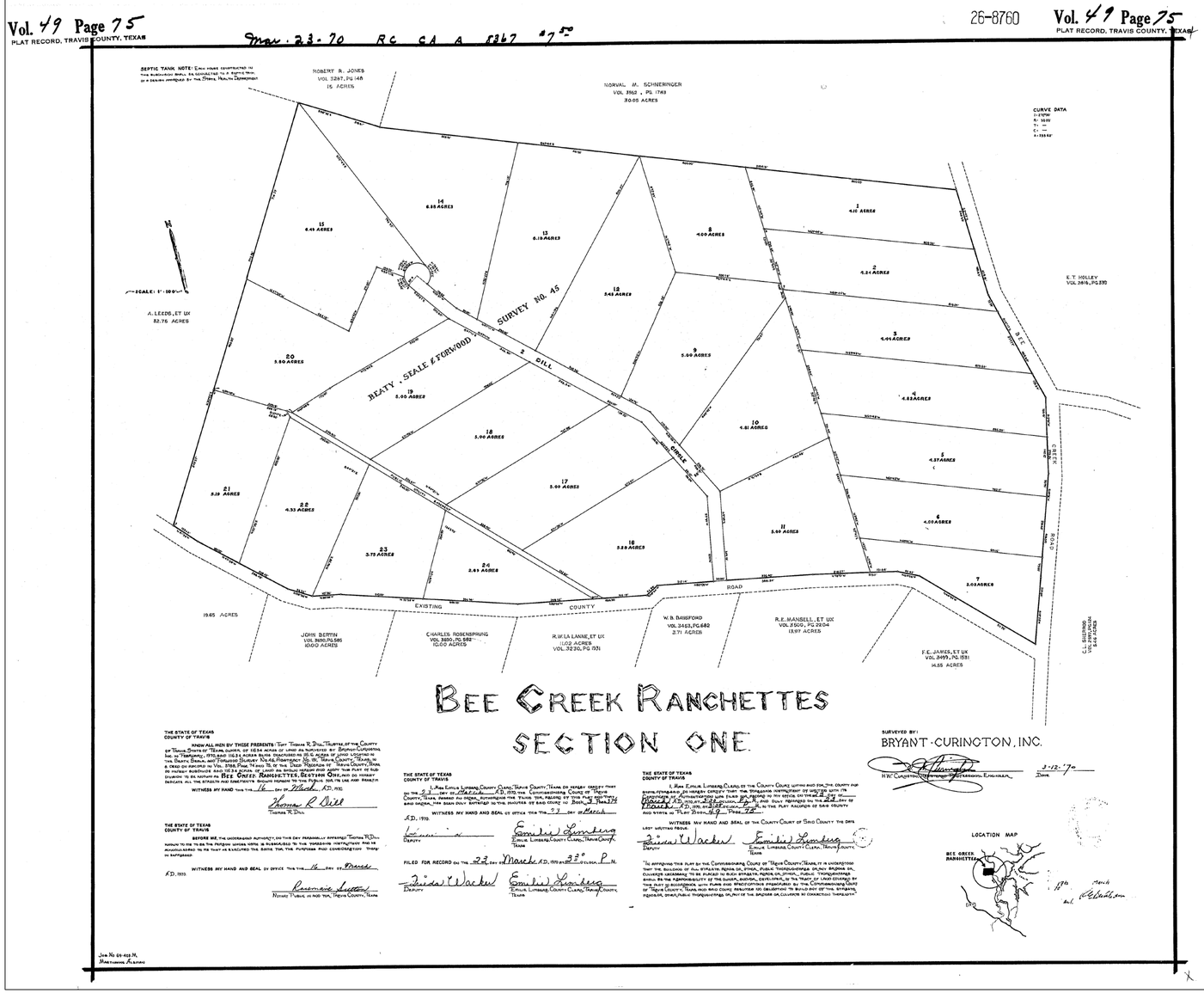


EXHIBIT 482.950

Pre-Construction Conference Planning and Agenda for SWP3 and ESC Plan

Before starting construction, the owner or their representative must submit a request, using the mypermitnow.org customer portal for Travis County, to participate in a pre-construction conference with the designated County Inspector. Prior to the pre-construction conference request, the owner or owner's representative shall ensure the first phase of the ESC controls are installed in conformance with the approved plans, the owner's qualified inspector has inspected the controls and verified compliance with the plans, and an SWP3 Inspection Report documenting this information has been sent to the County through the method specified by the designated County Inspector.

After arranging an agreed upon date with the County and providing the initial SWP3 Inspection Report, the owner or owner's designated representative shall provide notice of the SWP3 pre-construction conference and a copy of the approved plans, if requested, to the following persons or entities at least two business days before the conference:

1. Designated County Inspector(s)
2. Design engineer for the approved plans and SWP3, or their representative
3. Contractor(s)/Primary Operator(s)
4. Primary Operator's qualified inspector responsible for preparing the SWP3 Inspection Reports
5. Other stakeholders, as appropriate: municipalities, utilities, etc.

The SWP3 pre-construction conference may be a standalone meeting or a part of a larger pre-construction conference, but must include an on-site inspection approval of the first phase of the project's ESC Plan by the County Inspector before construction begins. The County Inspector will discuss the following applicable items in the approved plans and the SWP3 with the participants:

1. The SWP3 Site Notebook for the project, including review of completeness, signatures, consistency with the approved construction and ESC plans, and the requirements for maintaining the SWP3 Site Notebook during the construction process.
2. The sequence of construction and ESC Plan implementation; sediment basin construction scope prior to full site grading; non-structural erosion source controls; start dates and schedule of events.
3. Sediment controls; phasing of perimeter and interior sediment controls during construction; structural erosion source controls such as drainage diversion; ESC maintenance requirements.
4. Adequacy of the first ESC phase and future ESC phases to address specific site conditions, and adjustment and revision of the ESC Plan and SWP3 controls during construction.
5. Temporary and permanent stabilization and re-vegetation requirements, including schedule, critical site improvements and priority re-vegetation areas.
6. On and off-site temporary and permanent spoil and fill disposal areas, haul roads, staging areas, and stabilized construction entrances;
7. Permanent water quality controls construction and County inspections, and related grading and drainage construction.
8. Supervision of the SWP3 implementation by the primary operator's designated project manager, including roles, responsibilities, and coordination when more than one operator is responsible for implementation.
9. Inspection and preparation of the weekly SWP3 Inspection Reports by the primary operator's qualified inspector; report submittal by the primary operator, and SWP3 monitoring inspections conducted by the County Inspector.
10. Observation and documentation of existing site conditions adjacent to the limits of construction before construction, including waterways and potential outfall discharge routes, rights-of-way and easements, buffer zones, and critical environmental features.
11. Special site conditions and plan provisions, such as protection of waterways, critical environmental features, trees to be saved, and future homebuilding on subdivision lots.
12. Rain gage location or rainfall information source to be used during construction and reporting.
13. Final inspection and acceptance requirements, including the engineer's concurrence letter, completion of revegetation coverage before the Notice of Termination is submitted by the primary operator, stabilization of residential subdivision lots, removal of temporary sediment controls, the Certificate of Compliance and release of ESC fiscal surety.
14. Exchange of telephone numbers and contact information for the primary participants.

The design engineer shall prepare and distribute notes, key decisions, and follow up from the preconstruction conference to all participants within three business days after completion of the conference.

EXHIBIT 482.951 SWP3 Inspection Areas and Report Contents

The owner or primary operator of the construction site shall designate a qualified inspector possessing the required certification (as specified in Section 482.934(c)(3)) to perform a weekly SWP3 inspection and prepare a signed SWP3 Inspection Report of the inspection findings.

The construction site areas and the control measures listed herein are to be used as a minimum as the uniform criteria by the owner's qualified inspector, as well as the County Inspector, to evaluate and determine a project's compliance status with the approved SWP3 and ESC Plan.

In addition, on an ongoing basis and following storm events, the primary operator's responsible on-site personnel shall also inspect and address these items during construction as required by the SWP3, ESC Plan, and Travis County Code, Section 482.951.

Areas of Inspection. At the very least, the following areas must be inspected:

1. Disturbed areas and the approved limits of construction.
2. Perimeter and interior sediment controls.
3. Areas undergoing temporary stabilization or permanent vegetation establishment.
4. Temporary and permanent fill and spoil storage or disposal areas.
5. Storage areas for materials and equipment that are exposed to rainfall.
6. Outfall locations and the areas immediately downstream.
7. Structural controls, including sediment ponds, sediment traps, and drainage diversions.
8. Haul roads and locations where vehicles enter or exit the site, and adjacent roadways for evidence of off-site sediment tracking.
9. Waterway crossings and areas adjacent to waterways and critical environmental features.
10. Concrete wash out areas and all areas requiring control measures for non-storm water discharges, including dust, solid waste, de-watering, material spills, vehicle maintenance and washing, and wash water discharges.
11. Locations of all control measures that require maintenance, including any control measure identified in the previous SWP3 Inspection Report which required maintenance or revision by the owner or primary operator.
12. Locations of any discharge of sediment or other pollutants from the site and any disturbance beyond the approved limits of construction.
13. Locations of control measures that failed to operate as designed or proved inadequate for a particular location.
14. Locations where an additional ESC or control measure is needed.

The SWP3 Inspection Report must include:

A. Findings as to whether the following structural and non-structural controls required for the site areas listed above are functioning :in compliance with the approved SWP3 and ESC Plan:
   1. Erosion source controls, including the approved sequence of construction and grading plan limits, drainage diversion measures, temporary and permanent fill disposal and stockpile management measures.
   2. Sediment controls, including perimeter and interior controls, sediment traps and basins, and the sequence of construction requirements for the sediment controls.
   3. Permanent erosion and soil stabilization controls, based on the sequence of construction and critical site improvements, and the cessation of construction activities, including temporary stabilization measures for areas inactive for longer than 14 days, and permanent stabilization measures for areas at final grade.
   4. Other applicable controls and pollution prevention measures.

B. Rainfall documentation:
   1. For projects that comprise ten acres or more, the documentation must include rainfall dates and amounts in accordance with Section 482.934(e); and
   2. For projects that comprise less than ten acres, the documentation must include accurate rainfall data from a location closest to the site.

C. Corrective actions required for any non-compliant items and the schedule for bringing these items into compliance.

The SWP3 Inspection Report contents must contain the inspection findings for the required areas and control measures listed herein and certify whether the site is in compliance with the approved SWP3 and ESC Plan.

Either at the time of each SWP3 inspection, or no later than the date of the inspection, the owner's qualified inspector shall prepare and sign a SWP3 Inspection Report.

The owner or primary operator shall upload each required SWP3 or ESC Plan Inspection Report to the mypermitnow.org customer portal for Travis County. An alternate method of report submittal may be used if approved by the County Inspector.

0 ft. 3 ft. 5 ft. 10 ft.

The Engineer who prepared these plans is responsible for their adequacy. In approving these plans, Travis County must rely upon the adequacy of the work of the design engineer.

STATE OF TEXAS
Sidney L. Maxwell II
80644
LICENSED PROFESSIONAL ENGINEER
Date: 05/08/20

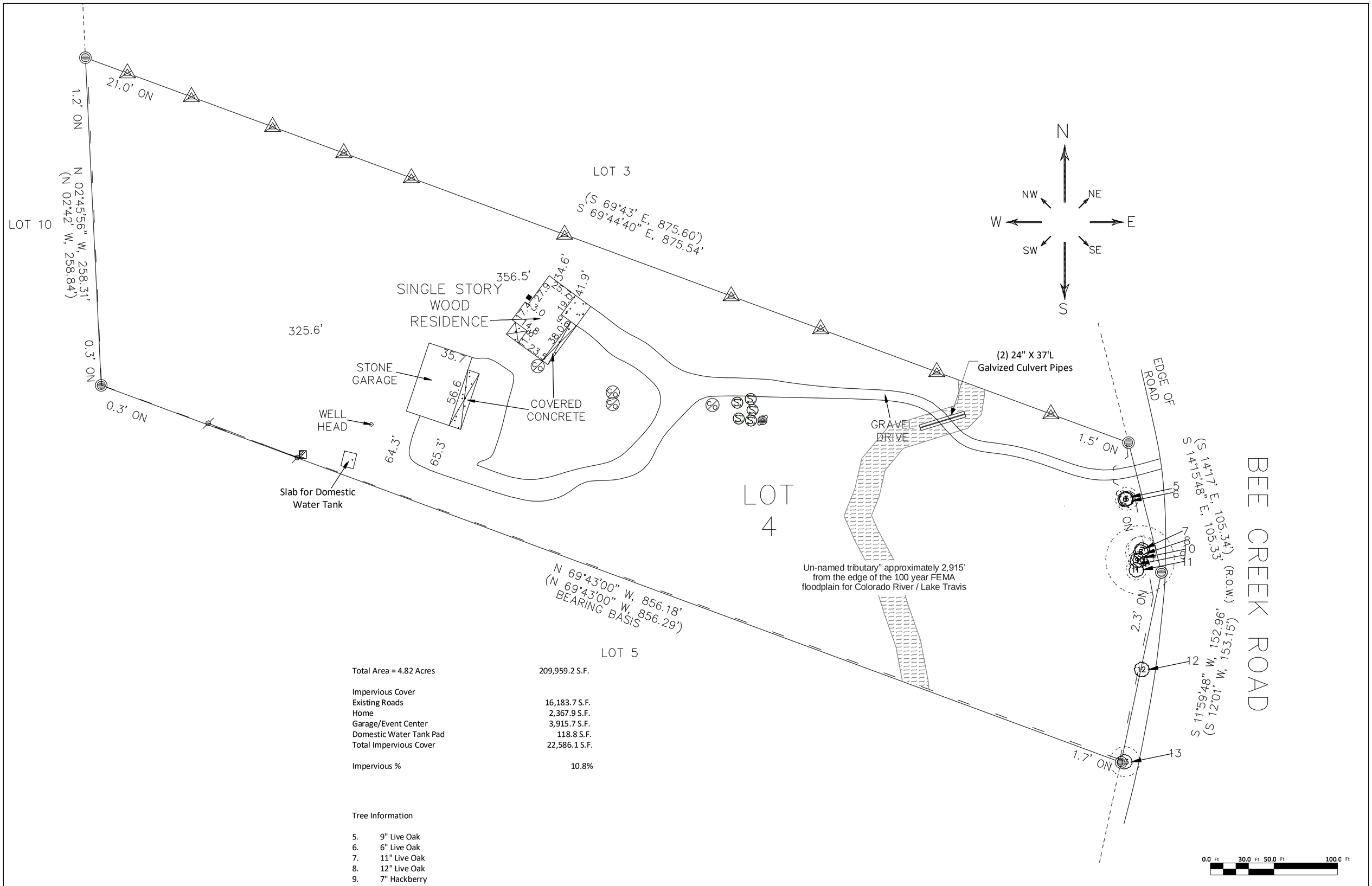
REV.	DESCRIPTION	DATE	BY

Lake Travis Engineering and Inspection LLC

Lake Travis Engineering and Inspection LLC
TBPE Firm No. 10248 / 512 633 7097

2106 Bee Creek Rd.
Required Notes – TC FD Submittal

Scale: 1/4" = 1'-0"
Date: 05/08/20
SIZE D
FSCM NO
DWG NO 01B
REV
SCALE
SHEET 1 OF 1



Total Area = 4.82 Acres	209,959.2 S.F.
Impervious Cover	
Existing Roads	16,183.7 S.F.
Home	2,367.9 S.F.
Garage/Event Center	3,915.7 S.F.
Domestic Water Tank Pad	118.8 S.F.
Total Impervious Cover	22,586.1 S.F.
Impervious %	10.8%

Tree Information

5. 9" Live Oak
6. 6" Live Oak
7. 11" Live Oak
8. 12" Live Oak
9. 7" Hackberry
10. 27" Live Oak
11. 11" Live Oak
12. 6" Live Oak
13. 11 ¾" Hackberry

STATE OF TEXAS
Sidney L. Maxwell II
80644
LICENSED
PROFESSIONAL ENGINEER

Date: 05/08/20

REV.	DESCRIPTION	DATE	BY

Lake Travis Engineering and Inspection LLC
TBPE Firm No. 10248 / 512 633 7097

2106 Bee Creek Rd
Existing Conditions

Scale: 1"= 50'

Date: 05/08/20

SIZE	FSCM NO	DWG NO	REV
C		02	
SCALE		SHEET	2 OF 1

Lot 10

Lot 3

Lot 4

Lot 5

(N 02°42'00" W 258.84')

(S 69°43'00" E 875.60')

(N 69°43'00" W 856.29')

(S 14°17'00" E 105.34')

(S 12°01'00" W 153.15')

BENCHMARK
TOP OF IRON ROD FOUND
ELEVATION = 795.18'
NAD 1988 DATUM

Note: Center of creek controls location

Begin Curb and Gutter.

End Curb and Gutter.

Asphalt Parking
1 ½" Asphalt over 5" base

Begin Curb and Gutter with 24" cut 10' O.C.

North Parking Lot
34 Spaces

North Detention Pond

ADA Ramps
1:12 Max slope
7'X7' landings

Existing Building - Repurposed for Office space

Asphalt Driveway
1 ½" Asphalt over 8" base
Capable of supporting 80,000 Lb maximum weight per TXDOT regs.

Any Fire Lane areas with a 10% or greater grade will require a Type C Chipseal top coat over asphalt to improve traction.

All road curves to have 30' or greater inner and 50' outer turn radius.

End Curb and Gutter with 24" cut 10' O.C.

4' wide concrete sidewalk.

Existing Building - Repurposed for Fellowship Hall

4550 S.F. Future Sanctuary

Existing Aerobic Septic

Edge of Road

SWP3 Sign and Permit Posting Location

Type II City of Austin Driveway Approach per Standard No. 433S-2

6" thick, 3000 psi concrete with #4 bars 16" O.C.E.W. per detail 1/09.

25'-0" Radius

Well Head

Slab for domestic water Tank

New 15' Dia Fire Tank
14,388 Gal

Begin Curb and Valley Gutter.

Concrete Flume

End Curb and Valley Gutter.

Un-named tributary" approximately 2,915' from the edge of the 100 year FEMA floodplain for Colorado River / Lake Travis

Bee Creek Road
R.O.W

Total Area = 4.82 Acres 209,959.2 S.F.

Impervious Cover
Driveways and Parking 37,892.6 S.F.
Office (Former House) 2,367.9 S.F.
Sanctuary/Fellowship Hall (Former Event Center) 3,915.7 S.F.
Future Sanctuary 4,550.0 S.F.
Fire Tank Pad 400.0 S.F.
Domestic Water Tank Pad 118.8 S.F.
Total Impervious Cover 49,363.8 S.F.

Impervious % 23.5%

Tree Information

5. 9" Live Oak
6. 6" Live Oak
7. 11" Live Oak
8. 12" Live Oak
9. 7" Hackberry
10. 27" Live Oak
11. 11" Live Oak
12. 6" Live Oak
13. 11 ¾" Hackberry

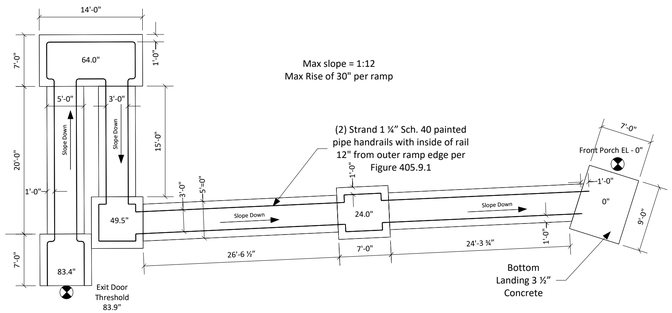
CRZ

½ CRZ

N
NW NE
W E
SW SE
S

Location of unnamed tributary on site with relationship to Colorado River/Lake Travis

Accessibility Ramp Detail



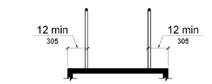


Figure 405.9.1
Extended Floor or Ground Surface Edge Protection

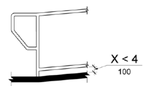
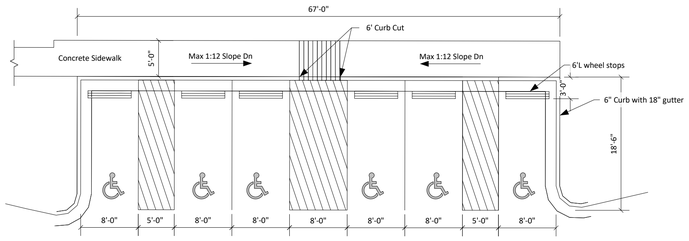


Figure 405.9.2
Curb or Barrier Edge Protection



Each space to have signage indications accessible spaces.

PARKING ONLY

0 ft. 30 ft. 50 ft. 100 ft.

STATE OF TEXAS
Sidney L. Maxwell II
80644
LICENSED PROFESSIONAL ENGINEER
Date: 09/19/21

Sheet 4 of 18

REV.	DESCRIPTION	DATE	BY

Lake Travis Engineering and Inspection LLC
TBPE Firm No. 10248 / 512 633 7097

2106 Bee Creek Rd
Proposed Site Plan

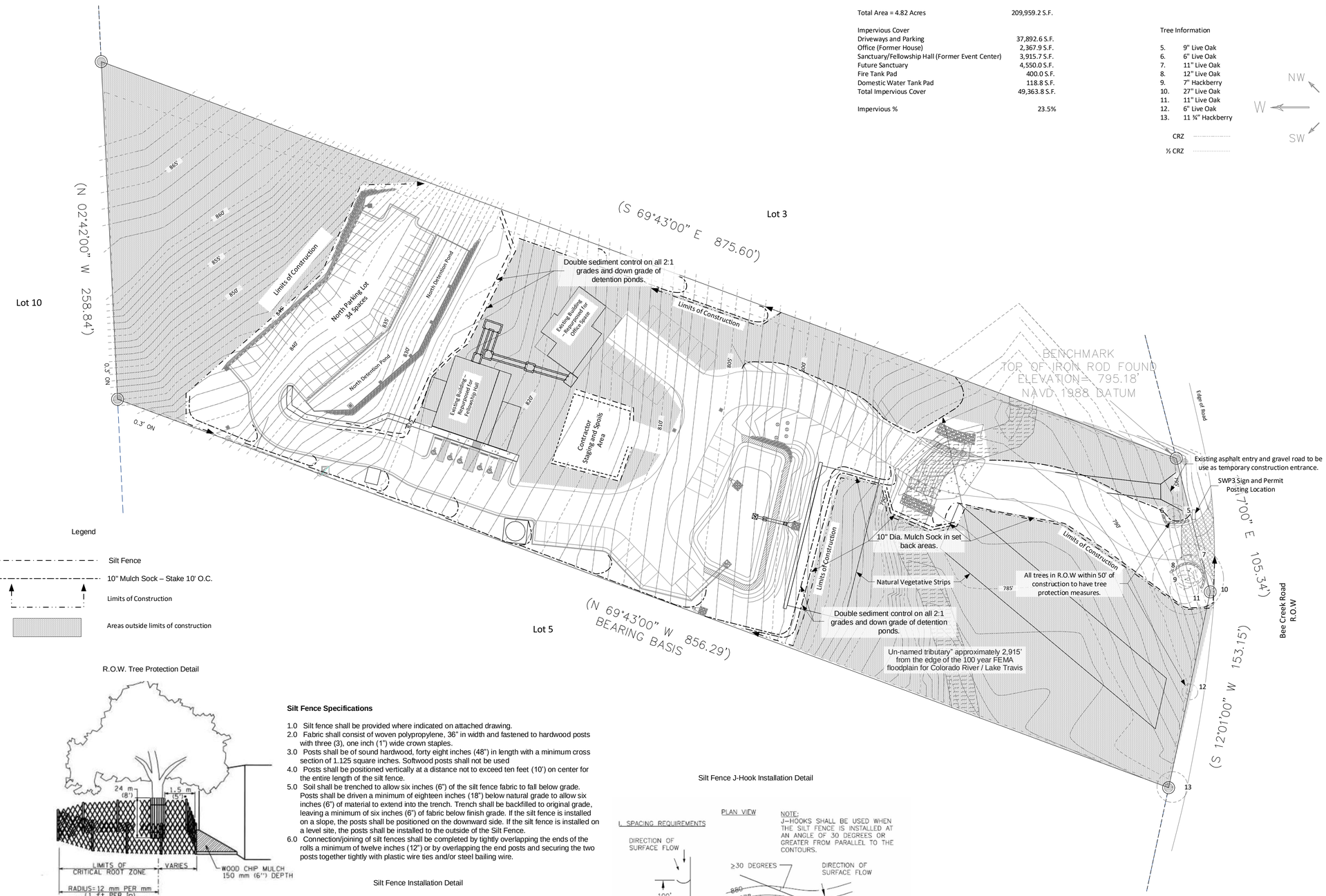
Scale: 1"= 30'

Date: 09/19/21

SIZE	FSCM NO	DWG NO	REV
E		03	

SCALE

SHEET 1 OF 1



Total Area = 4.82 Acres	209,959.2 S.F.
Impervious Cover	
Driveways and Parking	37,892.6 S.F.
Office (Former House)	2,367.9 S.F.
Sanctuary/Fellowship Hall (Former Event Center)	3,915.7 S.F.
Future Sanctuary	4,550.0 S.F.
Fire Tank Pad	400.0 S.F.
Domestic Water Tank Pad	118.8 S.F.
Total Impervious Cover	49,363.8 S.F.
Impervious %	23.5%

Tree Information

5. 9" Live Oak
6. 6" Live Oak
7. 11" Live Oak
8. 12" Live Oak
9. 7" Hackberry
10. 27" Live Oak
11. 11" Live Oak
12. 6" Live Oak
13. 11 ½" Hackberry

CRZ

½ CRZ

N NE E SE S SW W NW

Notes:

1. If a concrete washout is to be utilized during construction add a note on the plan sheets that states that the location will be determined once construction has begun and will be properly notated on the site map at that time.
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4. Install silt fence accordingly for run-on diversion or offsite sediment control depending on up or down slope, facing post side on the down gradient side.
5. All ESC used onsite must be regularly monitored and maintained as needed.
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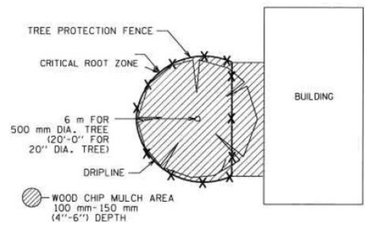
Legend

- Silt Fence
- 10" Mulch Sock – Stake 10' O.C.
- Limits of Construction
- Areas outside limits of construction

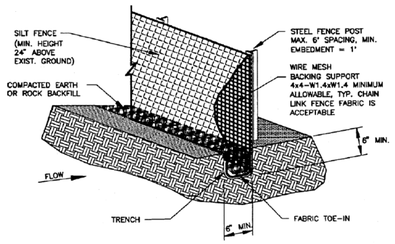
R.O.W. Tree Protection Detail



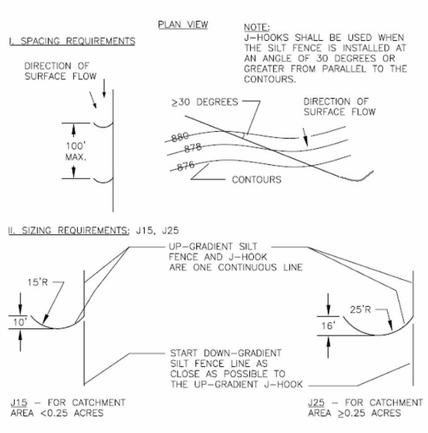
Silt Fence Specifications

1.0 Silt fence shall be provided where indicated on attached drawing.
2.0 Fabric shall consist of woven polypropylene, 36" in width and fastened to hardwood posts with three (3), one inch (1") wide crown staples.
3.0 Posts shall be of sound hardwood, forty eight inches (48") in length with a minimum cross section of 1.125 square inches. Softwood posts shall not be used
4.0 Posts shall be positioned vertically at a distance not to exceed ten feet (10') on center for the entire length of the silt fence.
5.0 Soil shall be trenched to allow six inches (6") of the silt fence fabric to fall below grade. Posts shall be driven a minimum of eighteen inches (18") below natural grade to allow six inches (6") of material to extend into the trench. Trench shall be backfilled to original grade, leaving a minimum of six inches (6") of fabric below finish grade. If the silt fence is installed on a slope, the posts shall be positioned on the downward side. If the silt fence is installed on a level site, the posts shall be installed to the outside of the Silt Fence.
6.0 Connection/joining of silt fences shall be completed by tightly overlapping the ends of the rolls a minimum of twelve inches (12") or by overlapping the end posts and securing the two posts together tightly with plastic wire ties and/or steel bailing wire.

Silt Fence Installation Detail



Silt Fence J-Hook Installation Detail



Location of unnamed tributary on site with relationship to Colorado River/Lake Travis

0 ft. 30 ft. 50 ft. 100 ft.

REV.	DESCRIPTION	DATE	BY
C	Added exit from contractor staging and spoils area.	03/01/21	SLM
B	Labeled all ESC measures, const. site entry and added culvert mulch socks.	01/31/21	SLM
A	Added silt fence around CSSA and shaded areas of outside LOC.	12/06/20	SLM

Lake Travis Engineering and Inspection LLC
TBPE Firm No. 10248 / 512 633 7097

2106 Bee Creek Rd
Temporary Erosion and Sediment Control Plan

Scale: 1"= 30'

Date: 03/01/21

SIZE E | FSCM NO | DWG NO 04 | REV

SCALE | SHEET 1 OF 1

STATE OF TEXAS
Sidney L. Maxwell II
80644
PROFESSIONAL LICENSED ENGINEER
Date: 03/01/21

Total Area = 4.82 Acres	209,959.2 S.F.
Impervious Cover	
Driveways and Parking	37,892.6 S.F.
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Sanctuary/Fellowship Hall (Former Event Center)	3,915.7 S.F.
Future Sanctuary	4,550.0 S.F.
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Total Impervious Cover	49,363.8 S.F.
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N NE E SE S SW W NW

Notes:

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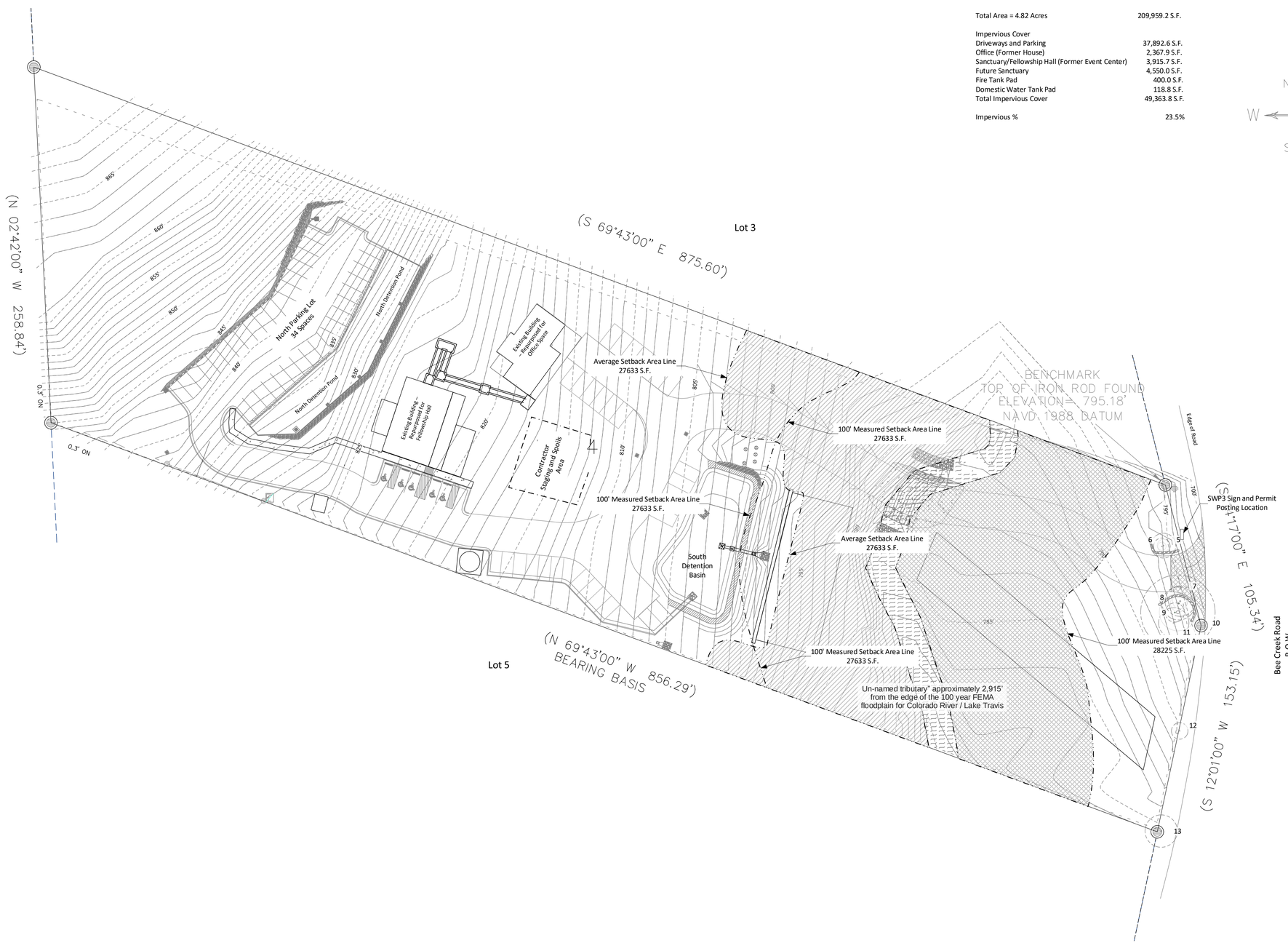


0 ft. 30 ft. 50 ft. 100 ft.

REV.	DESCRIPTION	DATE	BY

Sidney L. Maxwell II
80644
STATE OF TEXAS
PROFESSIONAL LICENSED ENGINEER
Date: 05/08/20

Lake Travis Engineering and Inspection LLC
TBPE Firm No. 10248 / 512 633 7097

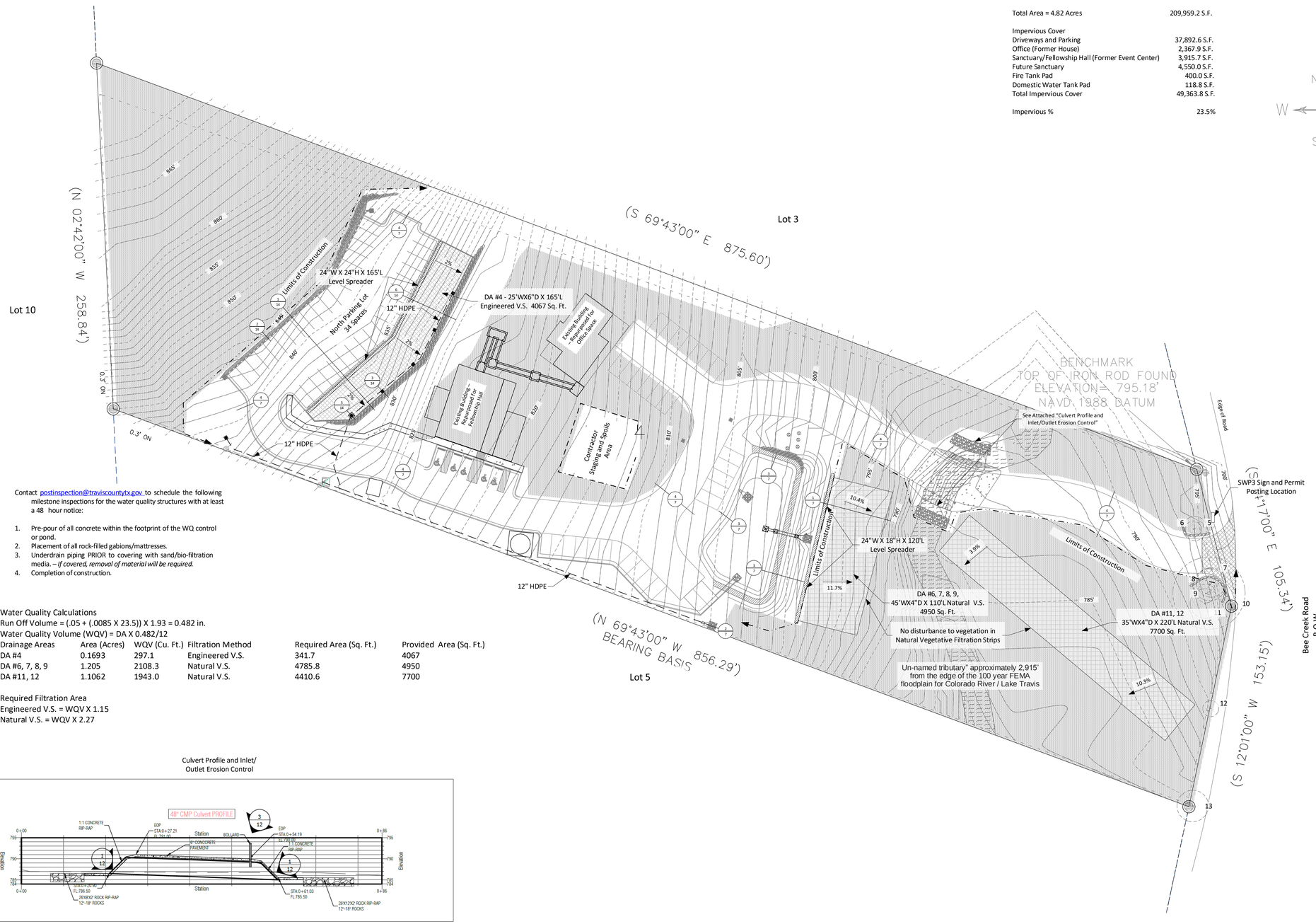
2106 Bee Creek Rd
Set Back Averaging Plan Plan

Scale: 1"= 30'

Date: 05/08/20

SIZE	FSCM NO	DWG NO	REV
E		05	

SCALE SHEET 1 OF 1



Contact postinspection@traviscountytx.gov to schedule the following milestone inspections for the water quality structures with at least a 48 hour notice:

1. Pre-pour of all concrete within the footprint of the WQ control or pond.
2. Placement of all rock-filled gabions/mattresses.
3. Underdrain piping PRIOR to covering with sand/bio-filtration media. – *If covered, removal of material will be required.*
4. Completion of construction.

Water Quality Calculations
Run Off Volume = (.05 + (.0085 X 23.5)) X 1.93 = 0.482 in.
Water Quality Volume (WQV) = DA X 0.482/12

Drainage Areas	Area (Acres)	WQV (Cu. Ft.)	Filtration Method	Required Area (Sq. Ft.)	Provided Area (Sq. Ft.)
DA #4	0.1693	297.1	Engineered V.S.	341.7	4067
DA #6, 7, 8, 9	1.205	2108.3	Natural V.S.	4785.8	4950
DA #11, 12	1.1062	1943.0	Natural V.S.	4410.6	7700

Required Filtration Area
Engineered V.S. = WQV X 1.15
Natural V.S. = WQV X 2.27

Total Area = 4.82 Acres	209,959.2 S.F.
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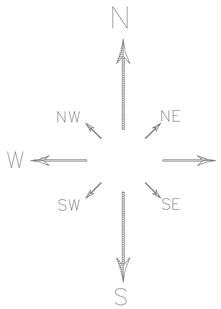

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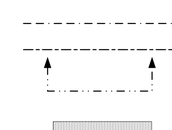
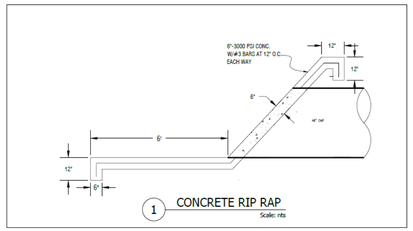
Legend

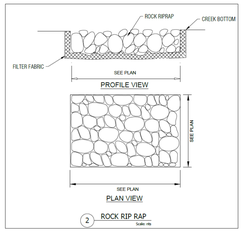


Culvert Profile and Inlet/ Outlet Erosion Control

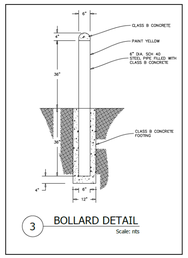
Detail 1/12 – Culvert Apron Concrete Rip Rap



Detail 2/12 – Culvert Inlet/Outlet Rock Rip Rap



Detail 3/12 – Bollard Detail



0 ft. 30 ft. 50 ft. 100 ft.

REV.	DESCRIPTION	DATE	BY
A	Added culvert inlet/outlet erosion control details.	12/06/20	SLM

Lake Travis Engineering and Inspection LLC
TBPE Firm No. 10248 / 512 633 7097

2106 Bee Creek Rd
Permanent Erosion and Water Quality Plan

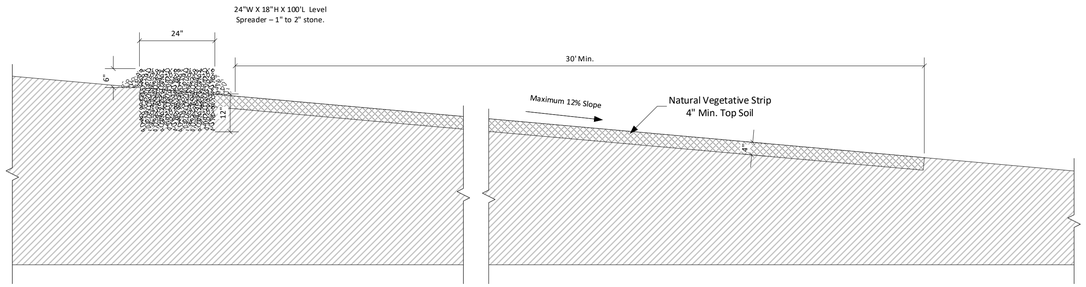
Scale: 1"= 30'

Date: 12/06/20

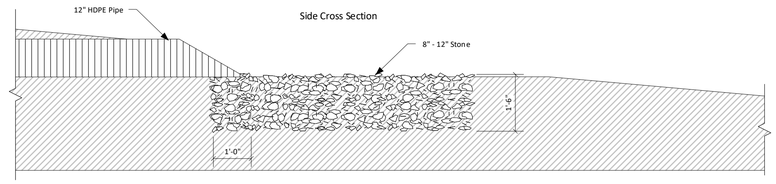
SIZE	FSCM NO	DWG NO	REV.
E		06	
SCALE		SHEET	1 OF 1

STATE OF TEXAS
Sidney L. Maxwell II
80644
PROFESSIONAL ENGINEER
Date:12/06/20

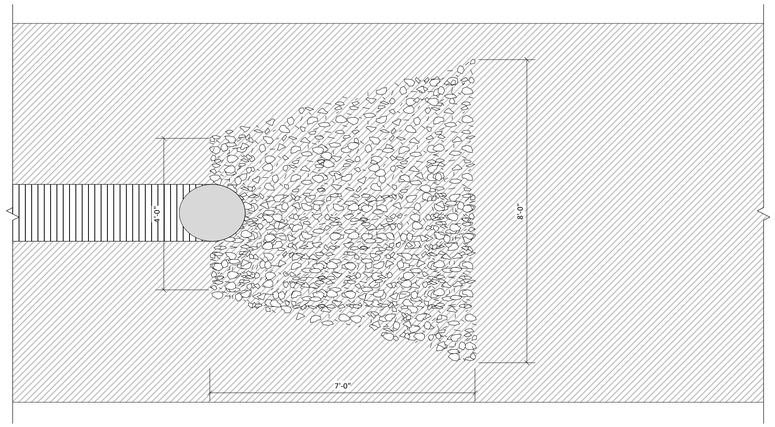
1/7 Natural Vegetative Strip Detail



2/7 12" HDPE Pipe Outlet Stabilization

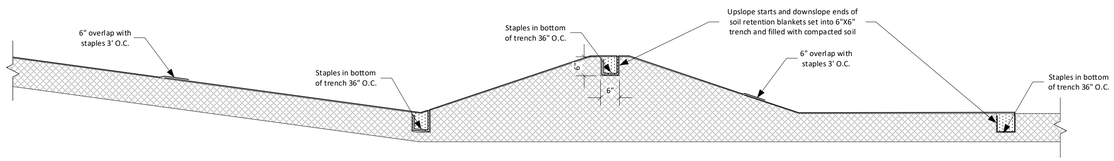


Plan View

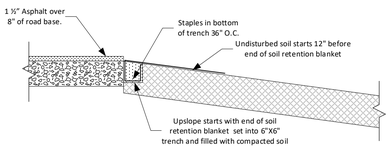


Note: depth of discharge is 4" and slope is .09. Shear equates to 1.68 PSF < 3 PSF. Discharge to grass vegetation is acceptable.

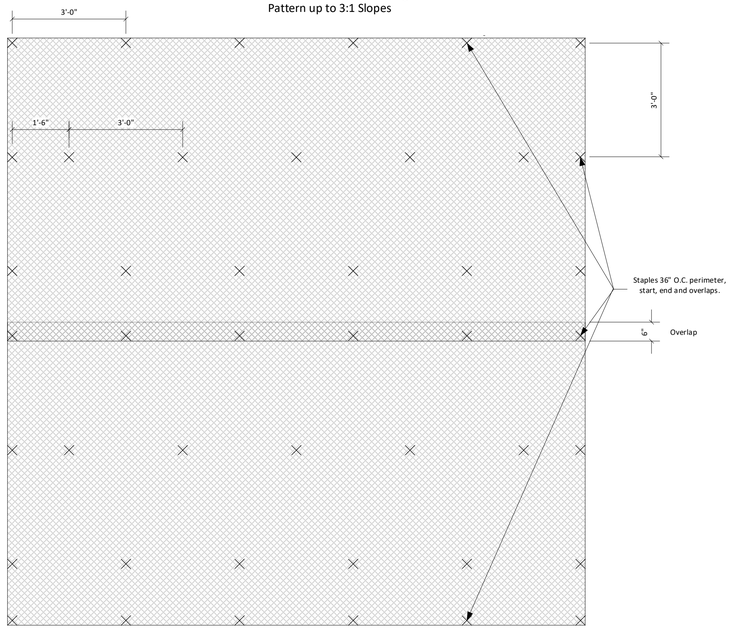
3/7 Berm and Basin Erosion Projection Detail



4/7 Driveway erosion projection detail



Soil Retention Blanket Stapling Pattern up to 3:1 Slopes



Notes:

1. All slope protection on this site consist of a 3:1 or flatter slope with clay soils. Disturbed soils to be covered with Class 1, Type A soil retention blankets over seeded soil.
2. Minimum combination of existing and imported top soil for seeding is 2".
3. All soil retention blanket areas, berms, engineered vegetative strips, and basins to be seeded with the Highland Lakes Watershed Ordinance Mix per table 3-4.
4. Use the Year Round mix at the rates listed in table 3-4
5. TX Wildflowers may be mixed in with grass seed.
6. Seeded areas to be covered with grass mat and stapled 3' O.C.E.W.
7. All berms should be sloped at a 3:1 or less and be compacted to 95% prior to seeding and matting.

Table 3-4 Permanent Seeding for Burnet, Travis, and Llano Counties

Dates	Climate	Species (lb/ac)	
Year Round	Permanent Cool/Warm Season (Native Species)	Purple three-awn (Aristida purpurea)	1.4
		Sideoats grama (Bouteloua curtipendula)	2.0
		Silver bluestem (Bothriochloa laguroides)	6.0
		Buffalograss (Buchloe dactyloides)	1.4
		Canadian wildrye (Elymus Canadensis)	1.4
		Engelmann's daisy (Engelmannia pinnatifida)	0.6
		Green sprangletop (Leptochloa dubia)	2.6
		Mexican hat (Ratibida columnifera)	1.0
		Little bluestem (Schizachyrium scoparium)	1.8
		Indiangrass (Sorghastrum nutans)	1.8
		Texas Wintergrass (Nassella leucotricha)	15.0
		Total	**35.0**
Mar 30 to Oct 1	Permanent Warm Season	Bermuda (Cynodon dactylon)(hulled)	45.0
Oct 1 to Mar 30	Permanent Cool/Warm Season	Bermuda (Cynodon dactylon) (unhulled)	70.0
		Cereal Rye (Secale cereale)	90.0
		Total	**160.0**

0 ft. 3 ft. 5 ft. 10 ft.

STATE OF TEXAS
Sidney L. Maxwell II
80644
LICENSED PROFESSIONAL ENGINEER
Date: 01/31/21

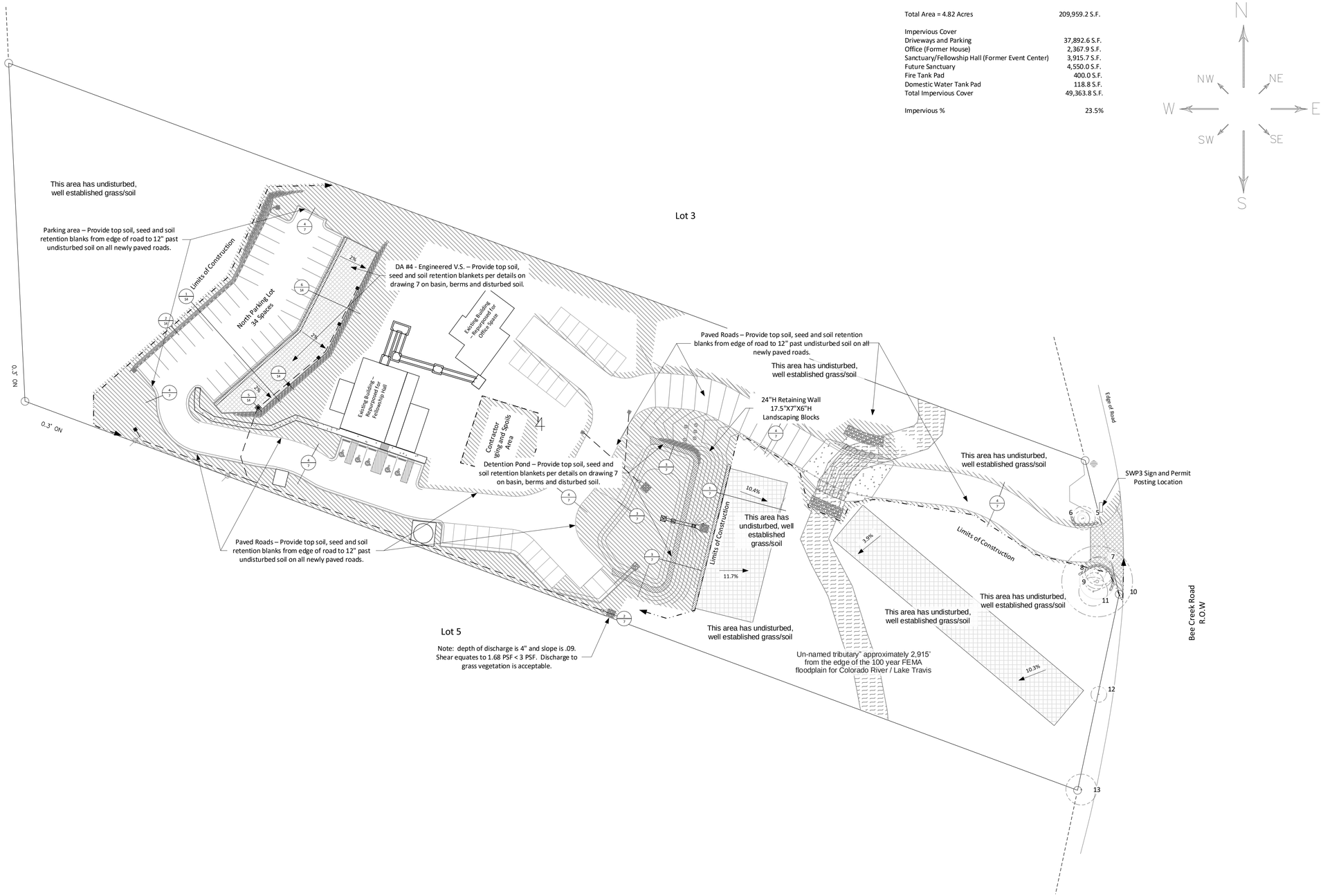
REV.	DESCRIPTION	DATE	BY
A	Added LCRA HLWO seed schedule.	01/31/21	SLM

Lake Travis Engineering and Inspection LLC
TBPE Firm No. 10248 / 512 633 7097

Spirit in the Hills Lutheran Church
2106 Bee Creek Rd
Water Quality and Restoration Details

Scale: 1/2" = 1'-0"
Date: 01/31/21

SIZE B | FSCM NO | DWG NO 07 | REV
SCALE 1/2" = 1'-0" | SHEET 1 OF 1



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Total Impervious Cover	49,363.8 S.F.
Impervious %	23.5%

Erosion Control Notes:

1. All slope protection on this site consist of a 3:1 or flatter slope with clay soils. Disturbed soils to be covered with Class 1, Type A grass/soil retention blankets over seeded soil.
2. Minimum combination of existing and imported top soil for seeding is 2".
3. All grass blanket areas, berms, engineered vegetative strips, and basins to be seeded with DOT Permanent Rural Seed Mix for the Austin area. See mix below.
4. Apply at a mixed rate of 7 Pounds/Acre.
5. TX Wildflowers may be mixed in with grass seed.
6. Seeded areas to be covered with grass mat and stapled 3' O.C.E.W.
7. All berms should be sloped at a 3:1 or less and be compacted to 95% prior to seeding and matting.
8. See details on page 7 – Water Quality and Restoration Details.

Green Sprangletop	0.3
Bermudagrass	0.9
Sideoats Grama (Haskell)	2.7
Little Bluestem (Native)	1.0
Blue Grama (Hachita)	0.9
Illinois Bundleflower	1.0

Engineered V.S. – Provide top soil, seed and soil retention blankets per details on drawing 7 on basin, berms and disturbed soil.

Natural Well Established V.S.

Provide top soil, seed and soil retention blankets per details on drawing 7 on basin, berms and disturbed soil.

Notes:

1. Initiate permanent stabilization immediately once work has ceased and final grade has been achieved in any given area.
2. The final stabilization/revegetation efforts shall be in accordance with the approved Restoration Plan details and specifications.
3. All 3:1 slopes or steeper require soil retention blanket (SRB).
4. The contractor is responsible for providing adequate watering/irrigation to achieve the permanent stabilization requirements in all disturbed/ revegetated areas before final acceptance for this project can be obtained.
5. All disturbed/bare areas will require permanent stabilization before Final Acceptance can be achieved. Avoid disturbing areas of the project that are not necessary for construction.
6. Any disturbed area(s) not indicted to be restored on the restoration plan requires the same efforts as those indicated.
7. All disturbed areas must meet the requirement for permanent stabilization.
8. The Notice of Termination (NOT) for this project shall not be submitted until the Travis County Environmental Inspector approves clearance.

0 ft. 30 ft. 50 ft. 100 ft.

STATE OF TEXAS
Sidney L. Maxwell II
80644
PROFESSIONAL LICENSED ENGINEER
Date: 12/06/20

REV.	DESCRIPTION	DATE	BY
A	Removed contour lines and added shading for restoration areas.	12/06/20	SLM

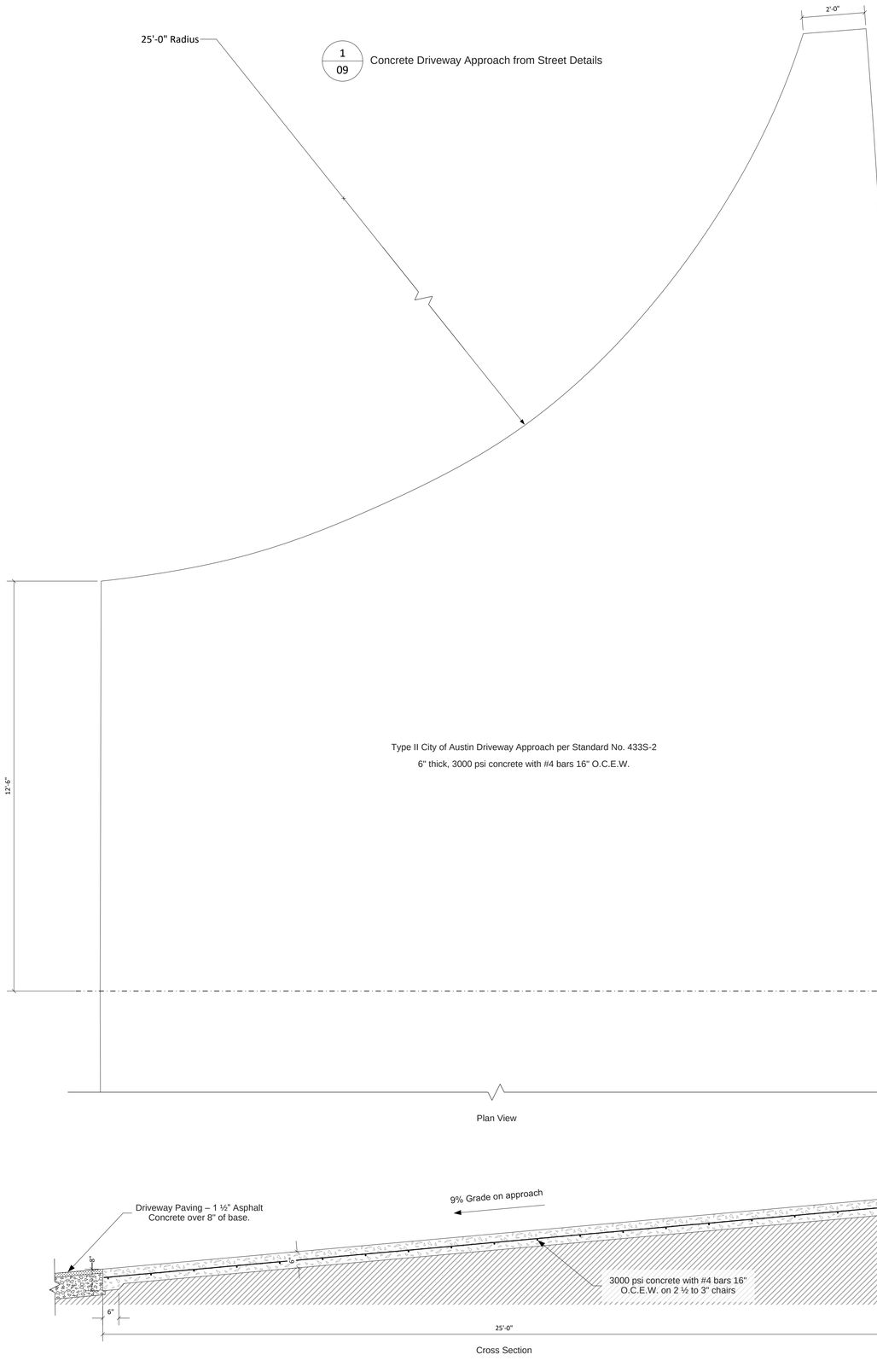
Lake Travis Engineering and Inspection LLC
TBPE Firm No. 10248 / 512 633 7097

2106 Bee Creek Rd
Stabilization/Restoration Plan

Scale: 1"= 30'

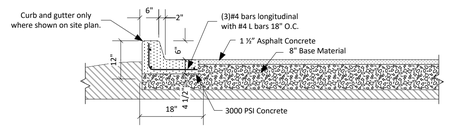
Date: 12/06/20

SIZE	FSCM NO	DWG NO	REV
E		08	
SCALE		SHEET	1 OF 1

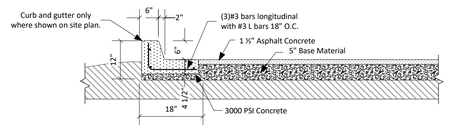


1 / 09 Concrete Driveway Approach from Street Details

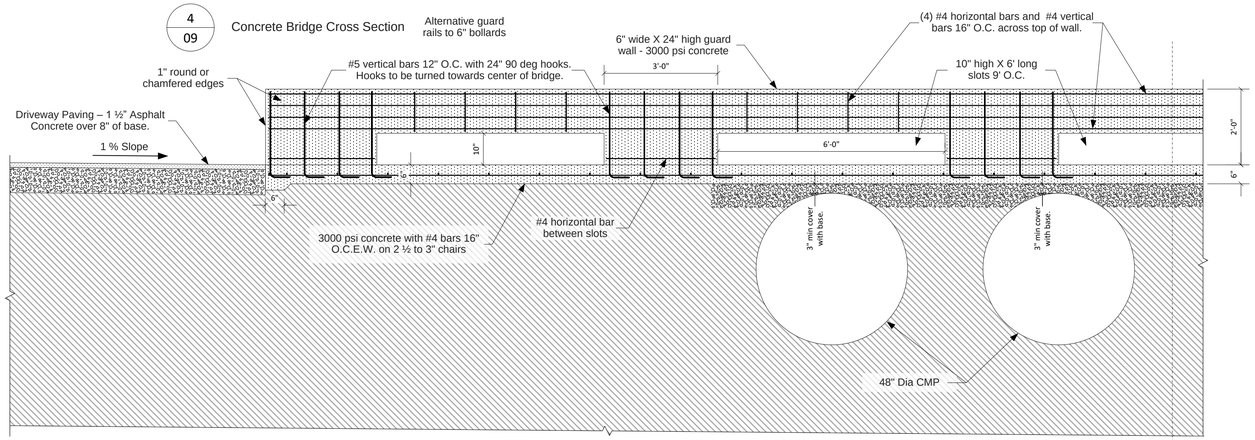
2 / 09 Asphalt Main Driveway Paving Cross Section



3 / 09 Asphalt Parking Paving Cross Section



4 / 09 Concrete Bridge Cross Section



Concrete Notes and Specifications

1. All concrete construction shall meet the requirements of the American Concrete Institute (ACI) building code requirements for reinforced concrete (ACI 318-05).
2. All organics must be removed and soil must be compacted to 95% compaction with heavy equipment in maximum of 12" lifts with water added between lifts. All fill to be select fill with no organic or clay content.
3. Reinforcing bars shall be grade 60 deformed bars and meet the requirements of ASTM A615. Splice laps, hooks and bends should meet the schedules on this sheet. Concrete cover shall be a minimum of 1 ½" for #4 and smaller bars and a minimum of 2" for #5 and larger bars. All reinforcing bars to be placed in middle of concrete thickness unless otherwise specified.
4. All reinforcement bars should be spaced off of soil with permanent plastic chairs or concrete blocks. Rebar shall not be permitted to come in contact with soil.
5. Contractor shall verify finishes prior to placing concrete. All inside finishes are to be hard troweled. Exterior finished to have a light broom finish.
6. Concrete for all floor slabs shall have a compressive strength of 3500 PSI and exterior paving to have a compressive strength of 3000 PSI. Curbs and flumes to have a compressive strength of 2500 psi. Slump to be no greater than 5" (4" target slump).
7. All interior concrete which may be subject to tile or other flooring must have 10 mil poly applied to compacted soil prior to the installation of reinforcement steel and concrete.

Asphalt Concrete Notes and Specifications:

1. All disturbed soil to be compacted to 95% compaction in no more than 12" lifts.
2. Crushed/decomposed rock base to be compacted in no more than 6" lifts to 95% compaction.
3. Paving for upper parking area and driveway past buildings to be a minimum of 5" base to be covered by 1.5" of Class A hot asphalt concrete
4. Paving for main drive ways to be minimum of 8" base covered with 1.5" of class A hot asphalt concrete.
5. A prime/tack coat shall be applied ahead of the asphalt concrete with a bituminous material temperature between 140 and 180 deg. F.
6. Asphalt Concrete to be placed a minimum temperature of 250 deg. F.
7. Asphalt to be have initial compaction with a steel drum roller with a minimum of 225 deg. F temperature.
8. Intermediate passes may be with a rubber tired roller, with final pass with a steel drum roller.
9. All fire lane areas with more than 10% of grade shall have a light chip seal coat applied over asphalt for vehicle traction.

Striping

1. Parking spaces to be lined for 8.0' wide by 18' long spaces with yellow stripes.
2. ADA Accessibility paths between spaces to be a minimum of 5' wide and to be cross lined with blue stipes 12" O.C. at a diagonal.
3. All fire lanes to be either striped or signed per local fire code requirements.

Table 7 – Tension Development and Lap Splice Lengths for Bars in Walls, Slabs and Footings (ACI 25.4.2.3)
f'_c = 3,000 psi

Bar Size	Lap Class	Concrete Cover = 0.75 in.				Concrete Cover = 1.50 in.				Concrete Cover = 2.00 in.				Concrete Cover = 3.00 in.			
		Uncoated		Epoxy-Coated		Uncoated		Epoxy-Coated		Uncoated		Epoxy-Coated		Uncoated		Epoxy-Coated	
		Top	Other	Top	Other	Top	Other	Top	Other	Top	Other	Top	Other	Top	Other	Top	Other
#3	A	13	12	17	15	13	12	17	15	13	12	17	15	13	12	17	15
	B	17	13	22	20	17	13	22	20	17	13	22	20	17	13	22	20
#4	A	22	17	28	25	17	13	23	20	17	13	23	20	17	13	23	20
	B	28	22	37	32	23	17	29	26	23	17	29	26	23	17	29	26
#5	A	32	24	41	37	23	17	28	25	22	17	28	25	22	17	28	25
	B	41	32	54	47	28	22	37	32	28	22	37	32	28	22	37	32
#6	A	43	33	56	50	26	20	34	30	26	20	34	30	26	20	34	30
	B	56	43	73	64	34	26	44	39	34	26	44	39	34	26	44	39
#7	A	69	53	90	80	43	33	55	49	38	29	49	43	38	29	49	43
	B	90	69	117	104	55	43	72	64	49	38	64	56	49	38	64	56
#8	A	86	66	112	99	54	41	70	62	43	33	56	50	43	33	56	50
	B	111	86	146	128	70	54	91	80	56	43	73	64	56	43	73	64
#9	A	104	80	136	120	65	51	86	76	53	41	70	61	48	37	63	56
	B	135	104	176	155	86	66	112	99	69	53	90	80	63	48	82	73
#10	A	125	96	163	144	81	62	106	93	66	51	86	76	55	42	71	63
	B	162	125	212	187	105	81	137	121	85	66	111	98	71	55	93	82
#11	A	146	113	191	169	97	74	126	111	79	61	103	91	61	47	79	70
	B	190	146	248	219	125	97	164	145	102	79	134	118	79	61	103	91

Table – Tension Development and Lap Splice Lengths for Bars in Walls, Slabs and Footings (ACI 25.4.2.3)
f'_c = 4,000 psi

Bar Size	Lap Class	Concrete Cover = 0.75 in.				Concrete Cover = 1.50 in.				Concrete Cover = 2.00 in.				Concrete Cover = 3.00 in.			
		Uncoated		Epoxy-Coated		Uncoated		Epoxy-Coated		Uncoated		Epoxy-Coated		Uncoated		Epoxy-Coated	
		Top	Other	Top	Other	Top	Other	Top	Other	Top	Other	Top	Other	Top	Other	Top	Other
#3	A	12	12	15	13	12	12	15	13	12	12	15	13	12	12	15	13
	B	15	12	19	17	15	12	19	17	15	12	19	17	15	12	19	17
#4	A	19	15	24	22	15	12	20	17	15	12	20	17	15	12	20	17
	B	24	19	32	28	20	15	25	22	20	15	25	22	20	15	25	22
#5	A	28	21	36	32	19	15	24	22	19	15	24	22	19	15	24	22
	B	36	28	47	41	24	19	32	28	24	19	32	28	24	19	32	28
#6	A	37	29	49	43	22	17	29	26	22	17	29	26	22	17	29	26
	B	48	37	63	56	29	22	38	34	29	22	38	34	29	22	38	34
#7	A	60	46	78	69	37	28	48	42	33	25	43	38	33	25	43	38
	B	78	60	102	90	48	37	62	55	42	33	55	48	42	33	55	48
#8	A	74	57	97	86	47	36	61	54	37	29	49	43	37	29	49	43
	B	96	74	126	111	60	47	79	70	48	37	63	56	48	37	63	56
#9	A	90	69	117	104	57	44	75	66	46	36	60	53	42	32	55	48
	B	117	90	153	135	74	57	97	86	60	46	78	69	55	42	71	63
#10	A	108	83	141	125	70	54	92	81	57	44	74	66	47	36	62	55
	B	140	108	183	162	91	70	119	105	74	57	97	85	61	47	80	71
#11	A	127	98	166	146	84	64	109	97	68	53	89	79	52	40	69	60
	B	165	127	215	190	109	84	142	125	89	68	116	102	68	52	89	79

Notes:

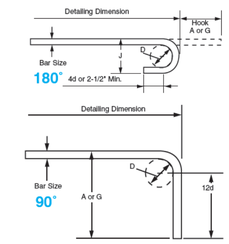
1. Tabulated values are based on a minimum yield strength of 60,000 psi and normal-weight concrete. Lengths are in inches.
2. Tension development lengths and tension lap splice lengths are calculated per ACI 318-14, Sections 25.4.2.3 and 25.5.1, respectively, with bar sizes limited to #3 through #11.
3. When the variable "c_b" from ACI 25.4.2.3 was calculated, it was assumed that concrete cover controlled. That is, c_b=c. spacing was assumed to be greater than **1.0** d_b plus twice the concrete cover.
4. Lap splice lengths (minimum of 12 inches) are multiples of tension development lengths; Class A = **1.0** ℓ_d and Class B = **1.3** ℓ_d (ACI 318 25.5.1). When determining the lap splice length, ℓ_d is calculated without the 12-inch minimum of ACI 25.4.2.1.
5. Top bars are horizontal bars with more than 12 inches of concrete cast below the bars.
6. For epoxy-coated bars, if the c.-c. spacing is at least **7.0** d_b and the concrete cover is at least **3.0** d_b, then lengths may be multiplied by 0.918 (for top bars) or 0.8 (for other bars).
7. For Grade 75 reinforcing bars, multiply the tabulated values by 1.25. For Grade 80 reinforcing bars, multiply the tabulated values by 1.33.
8. For lightweight concrete, divide the tabulated values by 0.75.

Use Lap Class B and Case 1
Based on Grade 60 steel and ACI 318-02. Splice lap lengths in inches.

Standard Hook and Bend Dimensions

Bar Size	D (in.)	180° Hooks		90° Hooks
		A or G	J	A or G
#3 [#10]	2-1/4"	5"	3"	6"
#4 [#13]	3"	6"	4"	8"
#5 [#16]	3-3/4"	7"	5"	10"
#6 [#19]	4-1/2"	8"	6"	1'–0"
#7 [#22]	5-1/4"	10"	7"	1'–2"
#8 [#25]	6"	11"	8"	1'–4"
#9 [#29]	9-1/2"	1'–3"	11-3/4"	1'–7"
#10 [#32]	10-3/4"	1'–5"	1'–1-1/4"	1'–10"
#11 [#36]	12"	1'–7"	1'–2-3/4"	2'–0"
#14 [#43]	18-1/4"	2'–3"	1'–9-3/4"	2'–7"
#18 [#57]	24"	3'–0"	2'–4-1/2"	3'–5"

Based on Grade 60 steel and ACI 318-02



Sidney L. Maxwell II
80644
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
Date: 09/19/21

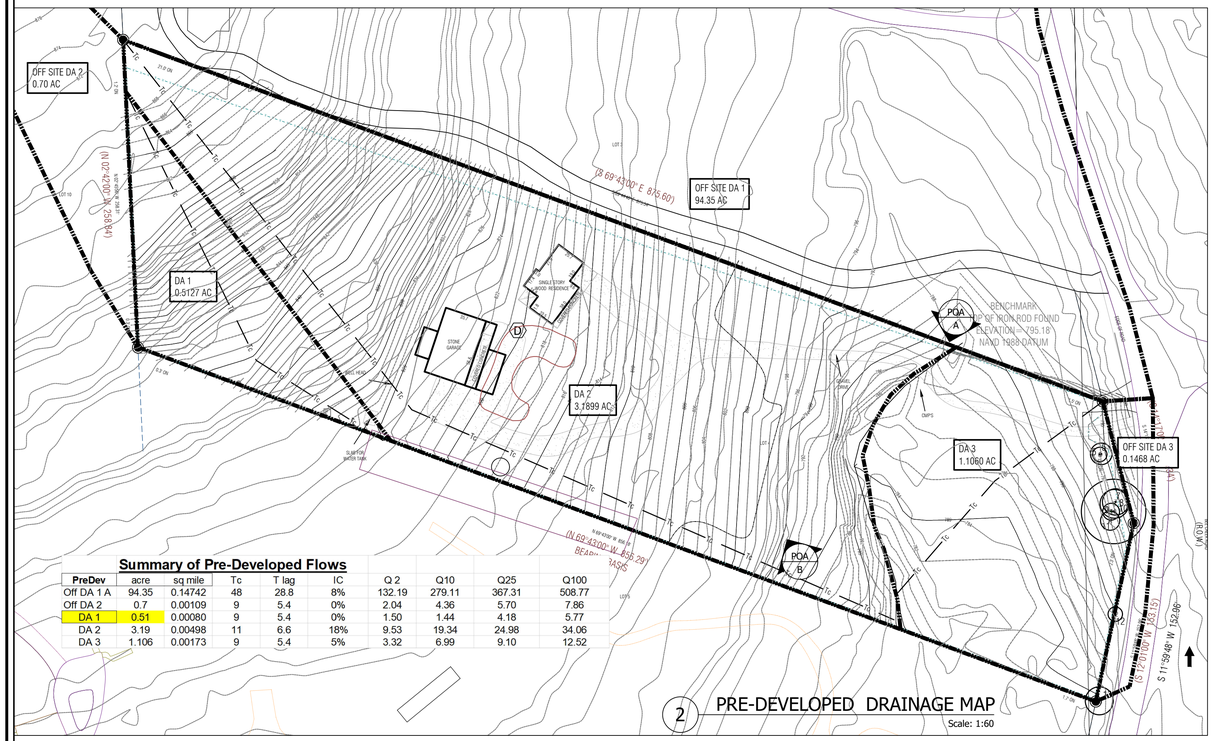
REV.	DESCRIPTION	DATE	BY

Lake Travis Engineering and Inspection LLC
TBPE Firm No. 10248 / 512 633 7097

Spirit in the Hills Lutheran Church
2106 Bee Creek Rd
Water Quality and Restoration Details

Scale: 1/2" = 1'-0"
Date: 09/19/21

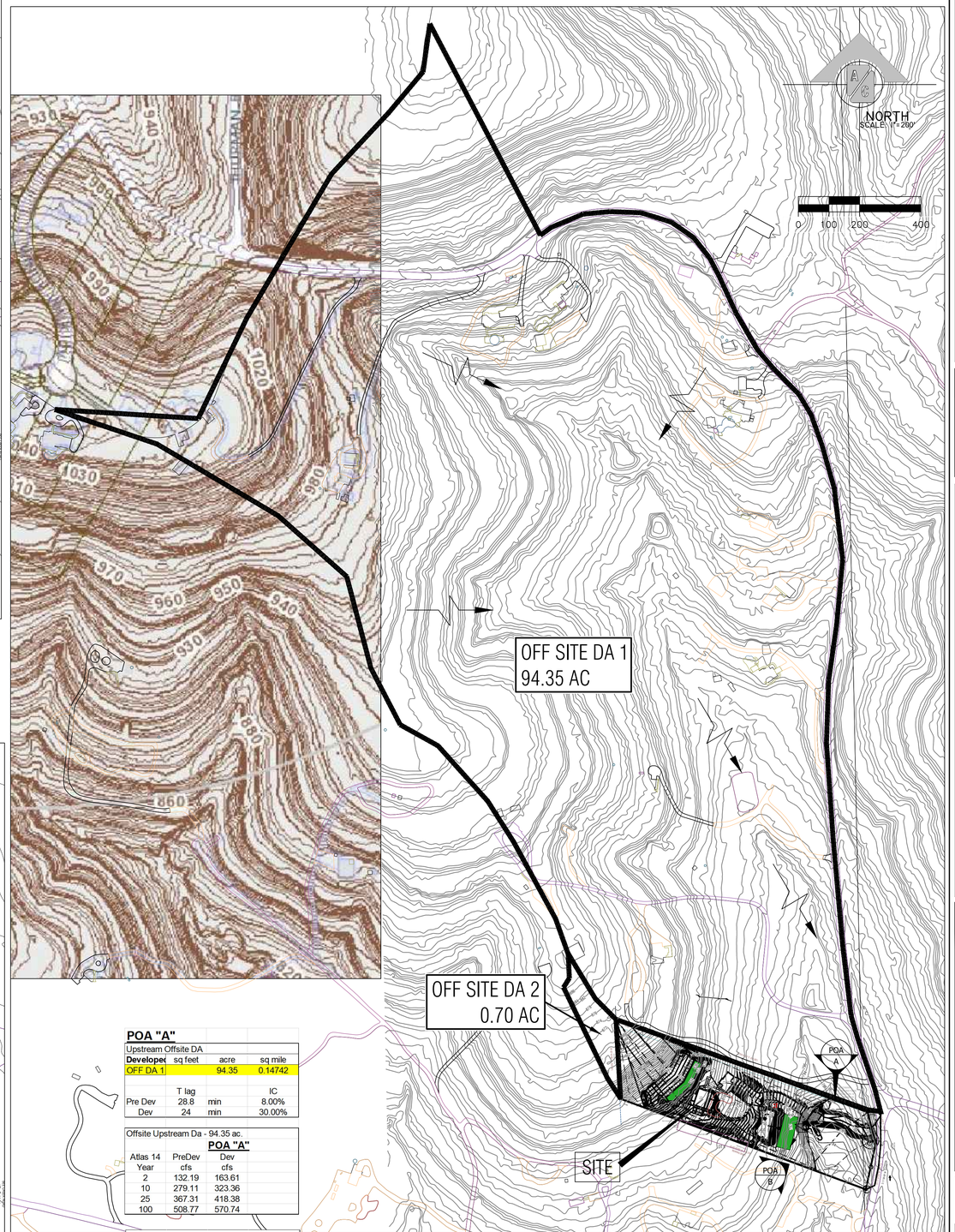
SIZE B | FSCM NO | DWG NO 07 | REV
SCALE 1/2" = 1'-0" | SHEET 1 OF 1



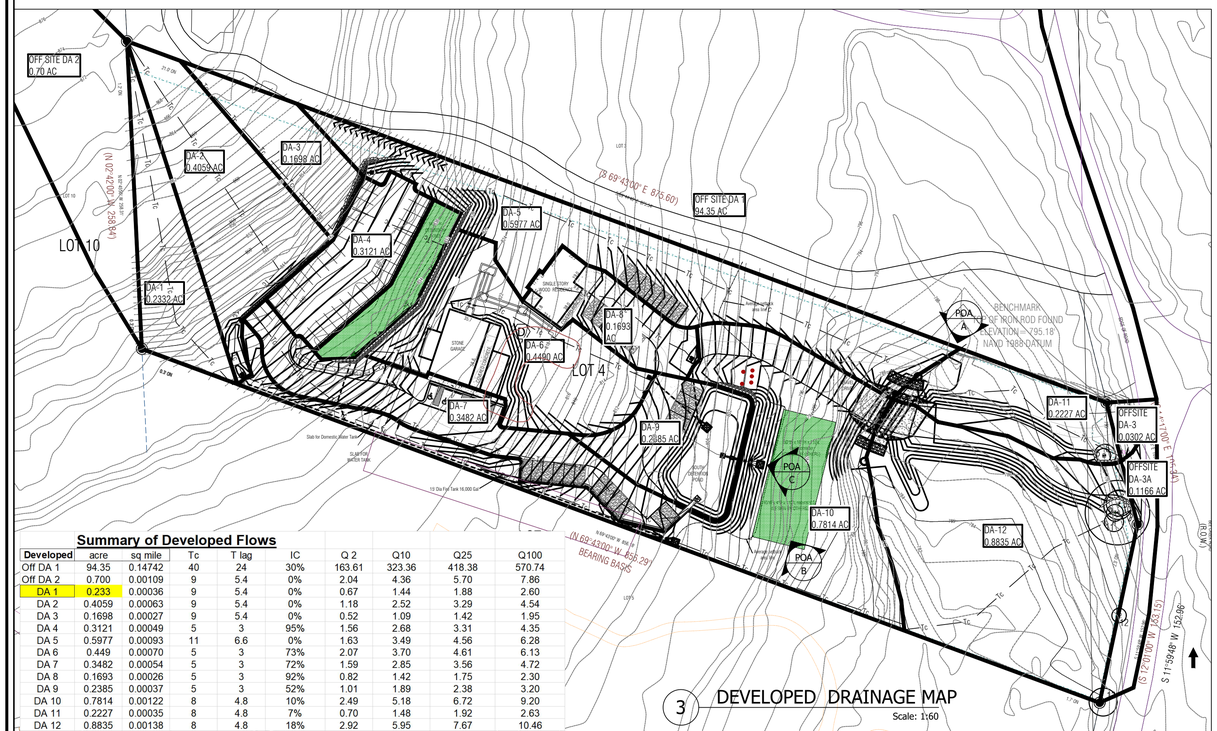
Summary of Pre-Developed Flows

PreDev	acre	sq mile	Tc	T lag	IC	Q 2	Q10	Q25	Q100
Off DA 1 A	94.35	0.14742	48	28.8	8%	132.19	279.11	367.31	508.77
Off DA 2	0.7	0.00109	9	5.4	0%	2.04	4.36	5.70	7.86
DA 1	0.51	0.00080	9	5.4	0%	1.50	1.44	4.18	5.77
DA 2	3.19	0.00498	11	6.6	18%	9.53	19.34	24.98	34.06
DA 3	1.106	0.00173	9	5.4	5%	3.32	6.99	9.10	12.52

2 PRE-DEVELOPED DRAINAGE MAP
Scale: 1:60



1 OFFSITE DRAINAGE MAP
Scale: 1:200



Summary of Developed Flows

Developed	acre	sq mile	Tc	T lag	IC	Q 2	Q10	Q25	Q100
Off DA 1	94.35	0.14742	40	24	30%	163.61	323.36	418.38	570.74
Off DA 2	0.700	0.00109	9	5.4	0%	2.04	4.36	5.70	7.86
DA 1	0.233	0.00036	9	5.4	0%	0.67	1.44	1.88	2.60
DA 2	0.4059	0.00063	9	5.4	0%	1.18	2.52	3.29	4.54
DA 3	0.1698	0.00027	9	5.4	0%	0.52	1.09	1.42	1.95
DA 4	0.3121	0.00049	5	3	95%	1.56	2.68	3.31	4.35
DA 5	0.5977	0.00093	11	6.6	0%	1.63	3.49	4.56	6.28
DA 6	0.449	0.00070	5	3	73%	2.07	3.70	4.61	6.13
DA 7	0.3482	0.00054	5	3	72%	1.59	2.85	3.56	4.72
DA 8	0.1693	0.00026	5	3	92%	0.82	1.42	1.75	2.30
DA 9	0.2385	0.00037	5	3	52%	1.01	1.89	2.38	3.20
DA 10	0.7814	0.00122	8	4.8	10%	2.49	5.18	6.72	9.20
DA 11	0.2227	0.00035	8	4.8	7%	0.70	1.48	1.92	2.63
DA 12	0.8835	0.00138	8	4.8	18%	2.92	5.95	7.67	10.46

3 DEVELOPED DRAINAGE MAP
Scale: 1:60

POA "A"

Upstream Offsite DA			
Developed	sq feet	acre	sq mile
OFF DA 1		94.35	0.14742

	T lag		IC
Pre Dev	28.8	min	8.00%
Dev	24	min	30.00%

Offsite Upstream Da - 94.35 ac.

Atlas 14 Year	PreDev cfs	POA "A" Dev cfs
2	132.19	163.61
10	279.11	323.36
25	367.31	418.38
100	508.77	570.74

Total Site - used to determine Detention sizing

POA "B"

Atlas 14 Year	PreDev cfs	Dev cfs	Reduced Flow cfs
2	14.23	13.26	0.97
10	29.40	27.79	1.61
25	38.11	35.56	2.55
100	52.17	45.47	6.70

AUSTIN CIVIL ENGINEERING, INC.
TBPE FIRM # F-001018
9501 B MENCHACA RD, SUITE 220
AUSTIN, TX 78748
PH: (512) 306-0018

10/5/20

SPIRIT IN THE HILLS CHURCH
2106 BEE CREEK ROAD
SPICEWOOD, TRAVIS COUNTY, TEXAS

REVISIONS			
REV.	DATE	DESCRIPTION	APPROVED BY

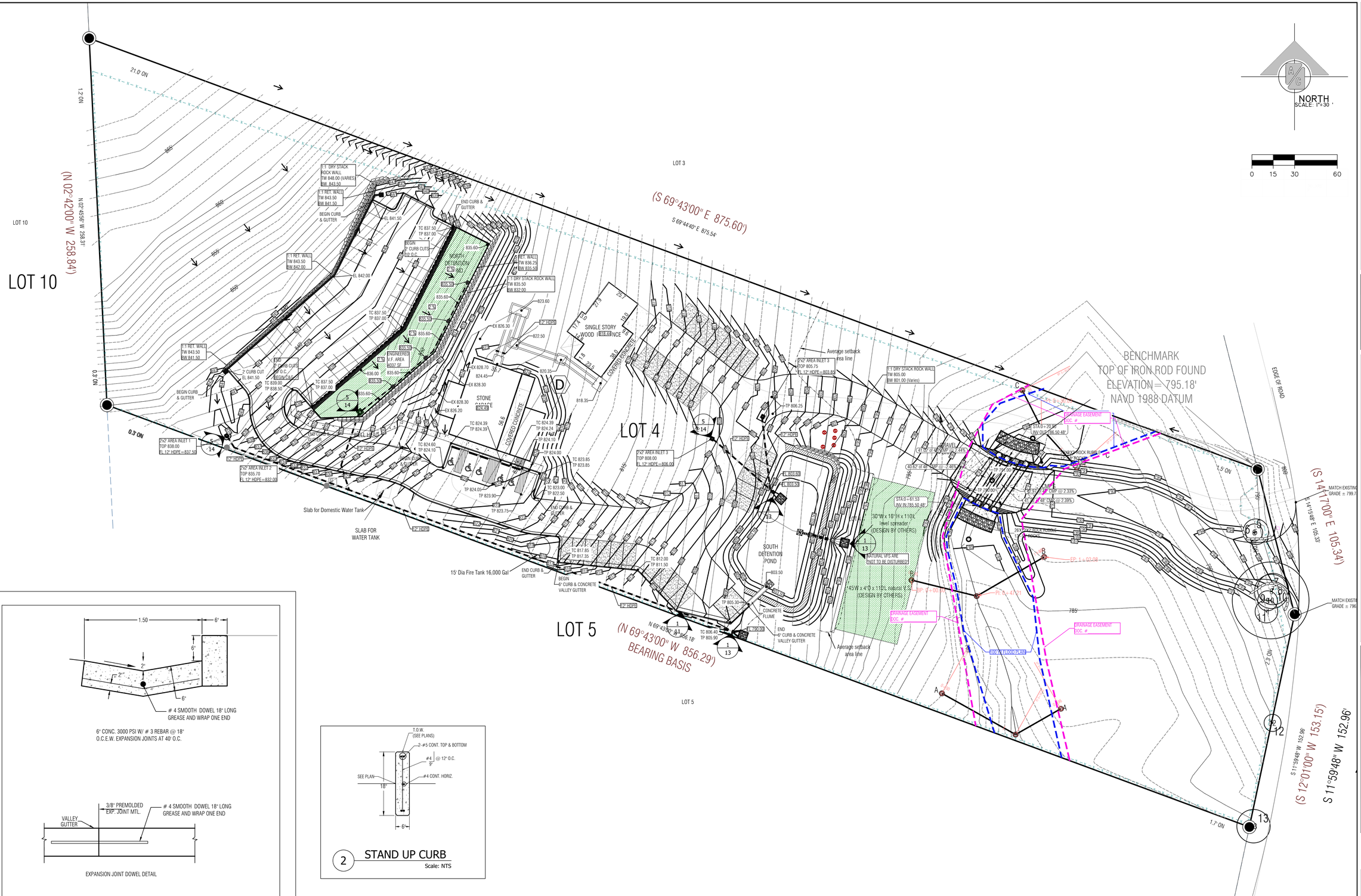
JOB: 19-048		DATE: 10/5/20	
CAD: DA/MM		CHK'D BY:	
ENGINEER: HS		CHK'D BY:	
SCALE:			

DRAINAGE AREA MAPS

SITE CIVIL PLAN

10

OF __



AUSTIN CIVIL ENGINEERING, INC.
TBPE FIRM # F-001018
9501 B MENCHACA RD, SUITE 220
AUSTIN, TX 78748
PH: (512) 306-0018

STATE OF TEXAS
RICHARD HUNTER SHADBURNE
74382
REGISTERED PROFESSIONAL ENGINEER
10/5/20

SPIRIT IN THE HILLS CHURCH
2106 BEE CREEK ROAD
SPICEWOOD, TRAVIS COUNTY, TEXAS

REV.	DATE	DESCRIPTION	APPROVED BY
		REVISIONS	

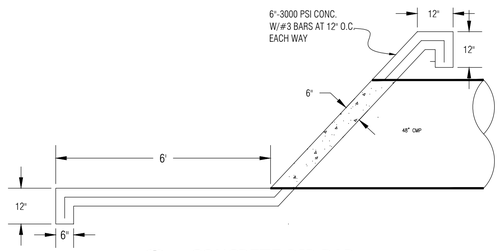
JOB: 19-048		DATE: 10/5/20	
CAD: DA/MM		CHK'D BY:	
ENGINEER: HS		CHK'D BY:	
SCALE:			

GRADING PLAN

SITE CIVIL PLAN

11

OF __



1 CONCRETE RIP RAP

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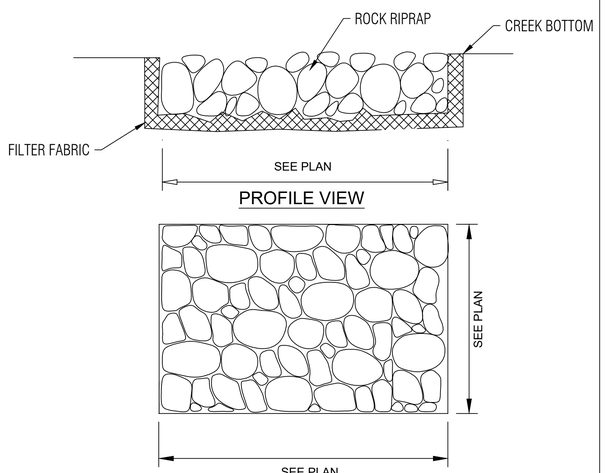


2 ROCK RIP RAP

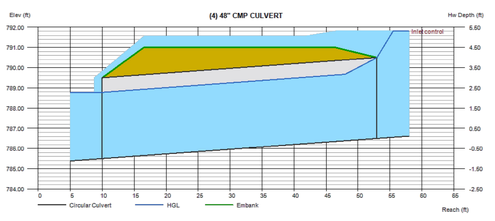
Scale: nts

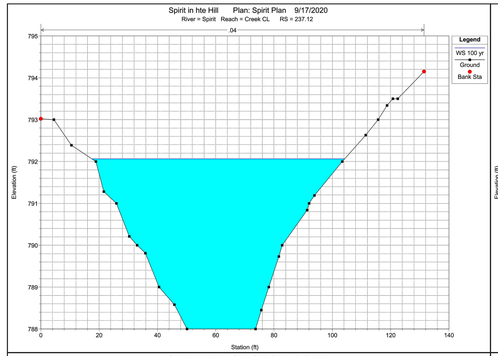
Culvert Report

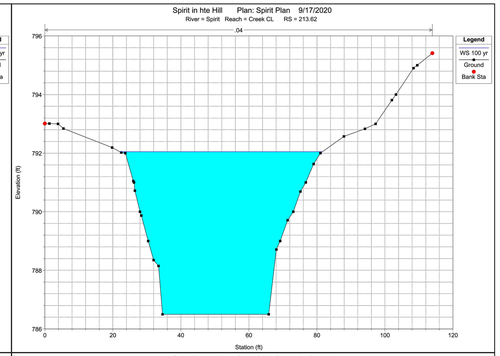
Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Monday, Oct 5 2020

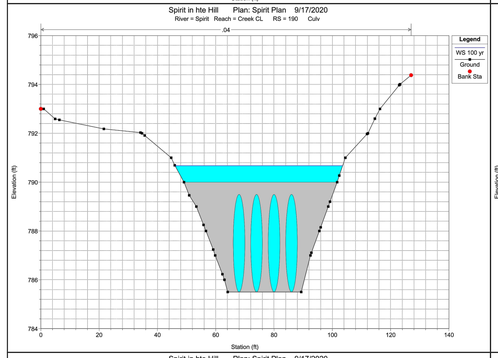
(4) 48" CMP CULVERT

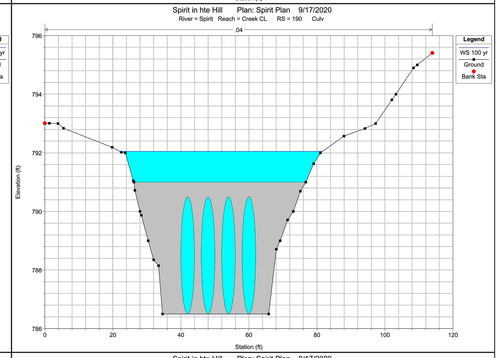
Invert Elev Dn (ft)	= 785.50	**Calculations**	
Pipe Length (ft)	= 42.97	Qmin (cfs)	= 0.00
Slope (%)	= 2.33	Qmax (cfs)	= 527.00
Invert Elev Up (ft)	= 786.50	Tailwater Elev (ft)	= 0.00
Rise (in)	= 48.0		
Shape	= Circular	**Highlighted**	
Span (in)	= 48.0	Qtotal (cfs)	= 527.00
No. Barrels	= 4	Qpipe (cfs)	= 474.74
n-Value	= 0.024	Qovertop (cfs)	= 52.26
Culvert Type	= Circular Culvert	Veloc Dn (ft/s)	= 10.76
Culvert Entrance	= Smooth tapered inlet throat	Veloc Up (ft/s)	= 10.74
Coeff. K,M,c,Y,k	= 0.534, 0.555, 0.0196, 0.9, 0.2	HGL Dn (ft)	= 788.78
		HGL Up (ft)	= 789.79
Embankment		Hw Elev (ft)	= 791.80
Top Elevation (ft)	= 791.00	Hw/D (ft)	= 1.33
Top Width (ft)	= 30.00	Flow Regime	= Inlet Control
Crest Width (ft)	= 24.00		

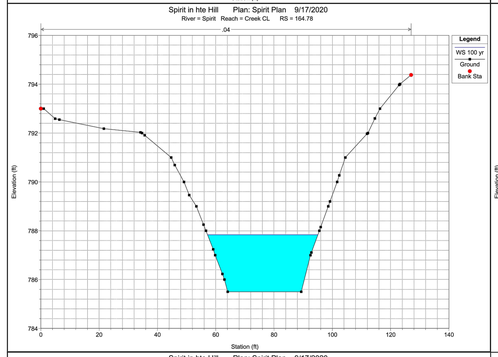


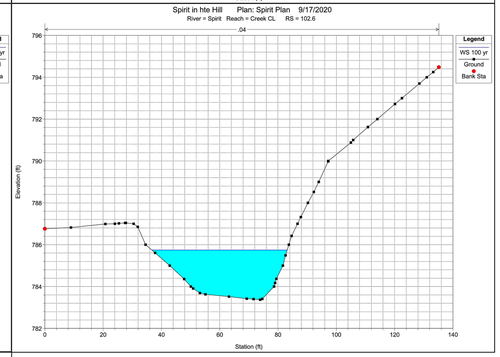


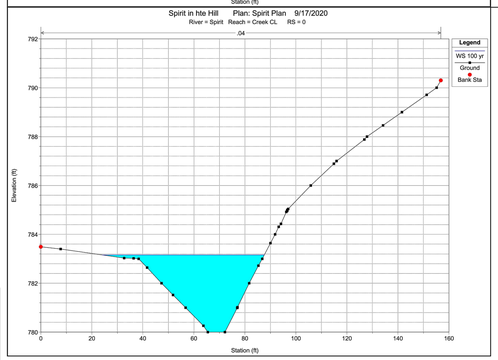


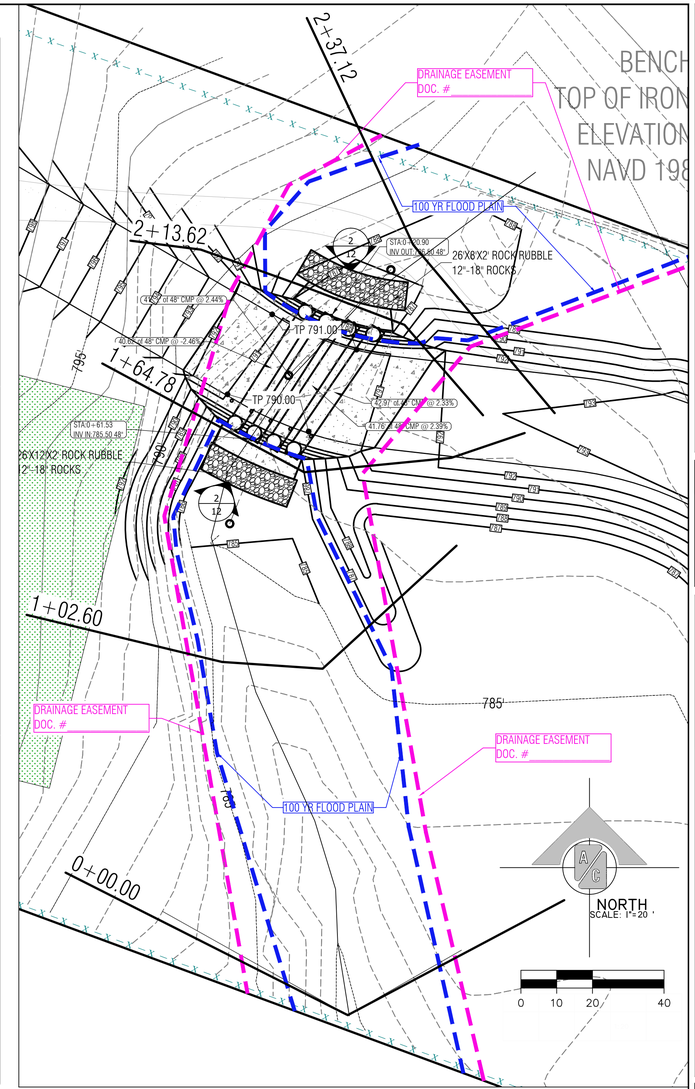


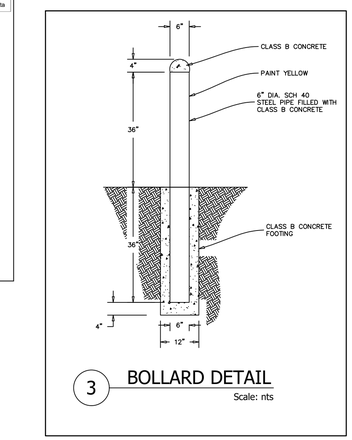






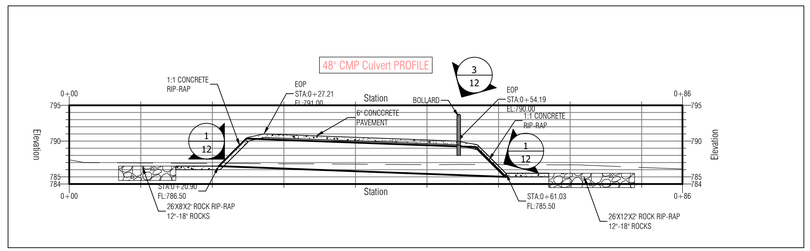






3 BOLLARD DETAIL

Scale: nts



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AUSTIN, TX 78748
PH: (512) 306-0018

SPIRIT IN THE HILLS CHURCH

2106 BEE CREEK ROAD
SPICEWOOD, TRAVIS COUNTY, TEXAS

REVISIONS			
NO.	DESCRIPTION	REV. DATE	APPROVED BY

JOB: 19-048		DATE: 10/5/20	
CAD: DA/MM		CHK'D BY:	
ENGINEER: HS		CHK'D BY:	
SCALE:			

CULVERT & CREEK SECTIONS

SITE CIVIL PLAN

12

OF __

POA "C"

Spirit of the Hills - South Pond for Church Are

Detention Pond			Storage	Cumulative	Cumulative
Stage (ft)	Area (sf)	Area (ac)	(cubic feet)	Storage	ac-ft
801.50	8.0	0.0002	0	0	0.000
803.00	16.0	0.0004	18	18	0.000
803.50	2769.0	0.0636	1,705	1,723	0.040
804.00	4096.0	0.0940	**2,152**	**3,876**	**0.089**
804.50	4517.0	0.1037	**2,363**	**6,238**	**0.143**
805.00	4938.0	0.1134	**2,528**	**8,766**	**0.201**
805.50	5173.0	0.1188	**2,645**	**11,411**	**0.262**
806.00	5408.0	0.1242	2,645	**14,056**	**0.323**

Spirit of the Hills - South Pond for Church Area

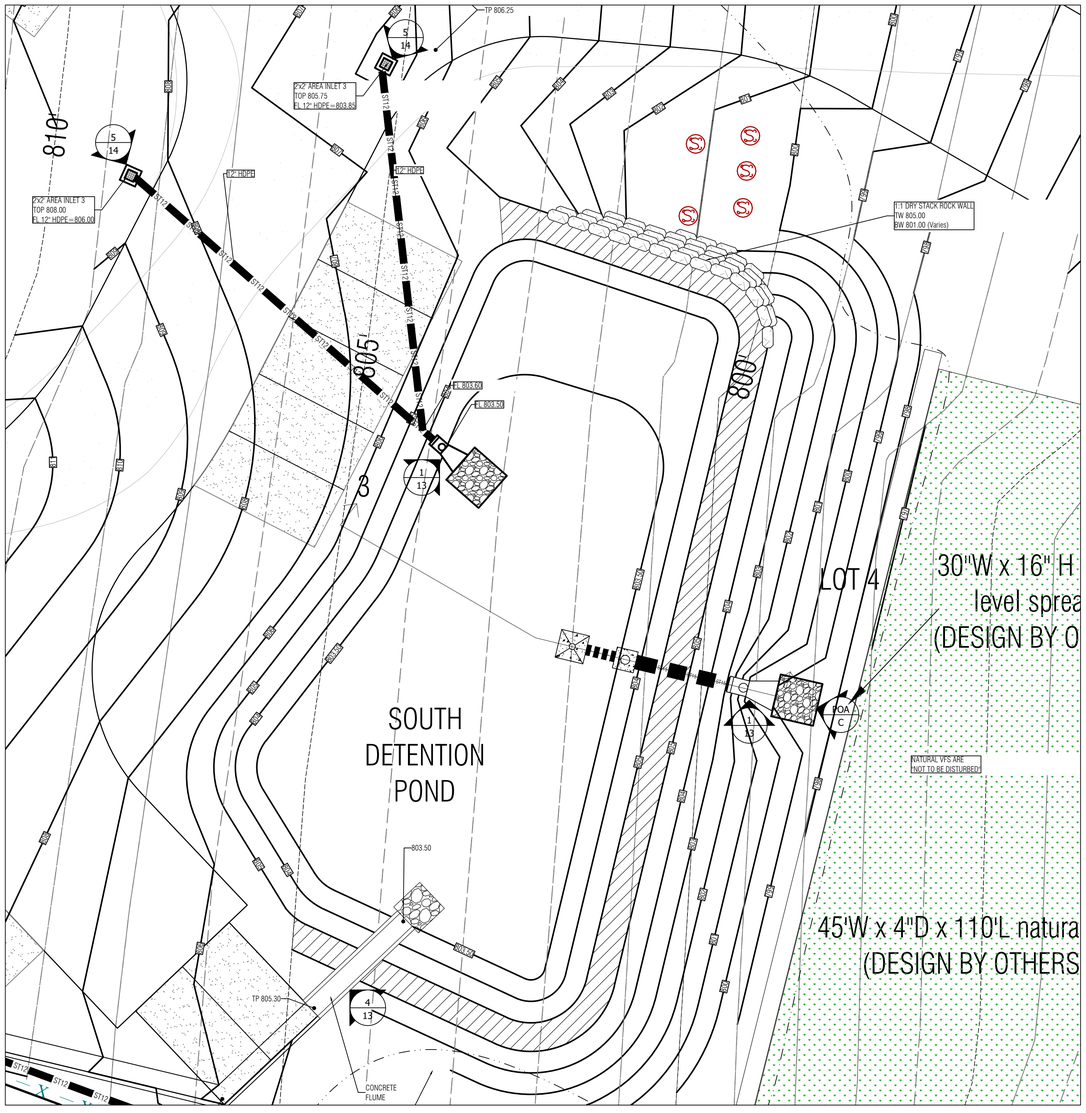
Summary Routing table (Stage / Storage / Discharge) — **POA C**

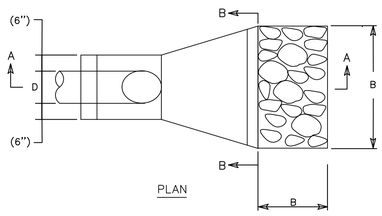
Storm Event	Developed flows (to det. pond) Q - cfs	Dev (Routed) Qa - cfs POA - C	Pond Elevation Stage ft.	Storage CFT
				0.0
2-yr	5.48	**2.52**	803.75	**1,429**
10-yr	9.86	**6.05**	804.13	**2,914**
25-yr	12.30	**7.27**	804.37	**3,947**
100-yr	16.35	**8.89**	804.78	**5,833**

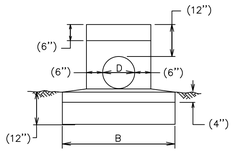
Spirit of the Hills - South Pond for Church Area

DETENTION POND OUTFLOW Structure

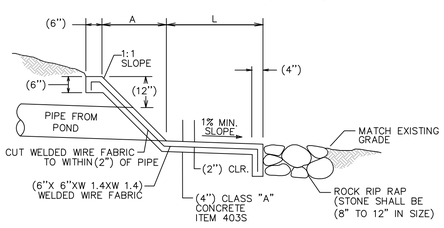
	Dia (in) 8.000 Dia (ft) 0.667		Dia (in) 15.000 Dia (ft) 1.250		L (ft) = 0.00 H (ft) =			
	Orifice A = 801.50	0.6 0.35 flowline	**Orifice A = 803.80**	0.6 1.23 flowline	Weir **L (ft) = 999.00**	C=3.0 1.00 flowline	**Total Flow**	
elevation	Orifice H (to CL) H	Q (cfs)	Orifice H (to CL) H	Q (cfs)	H	Q (cfs)	Q (cfs)	elevation
801.50	0.00	**0.00**	0.00	**0.00**	0.00	**0.00**	**0.00**	801.50
801.75	0.25	**0.84**	0.00	**0.00**	0.00	**0.00**	**0.84**	801.75
802.00	0.50	**1.19**	0.00	**0.00**	0.00	**0.00**	**1.19**	802.00
802.25	0.75	**1.46**	0.00	**0.00**	0.00	**0.00**	**1.46**	802.25
802.50	1.00	**1.68**	0.00	**0.00**	0.00	**0.00**	**1.68**	802.50
802.75	1.25	**1.88**	0.00	**0.00**	0.00	**0.00**	**1.88**	802.75
803.00	1.50	**2.06**	0.00	**0.00**	0.00	**0.00**	**2.06**	803.00
803.25	1.75	**2.22**	0.00	**0.00**	0.00	**0.00**	**2.22**	803.25
803.50	2.00	**2.38**	0.00	**0.00**	0.00	**0.00**	**2.38**	**803.50**
803.75	2.25	**2.52**	0.00	**0.00**	0.00	**0.00**	**2.52**	803.75
804.00	2.50	**2.66**	0.20	**2.64**	0.00	**0.00**	**5.30**	804.00
804.25	2.75	**2.79**	0.45	**3.96**	0.00	**0.00**	**6.75**	804.25
804.50	3.00	**2.91**	0.70	**4.94**	0.00	**0.00**	**7.85**	**804.50**
804.75	3.25	**3.03**	0.95	**5.76**	0.00	**0.00**	**8.79**	804.75
805.00	3.50	**3.14**	1.20	**6.47**	0.00	**0.00**	**9.62**	**805.00**



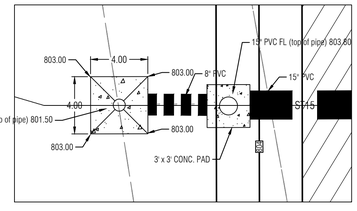




A	(18")	(20")	(22")	(24")	(27")
B	(30")	(32")	(34")	(42")	(51")
D	(6")	(8")	(10")	(12")	(15")
L	(24")	(24")	(30")	(36")	(48")

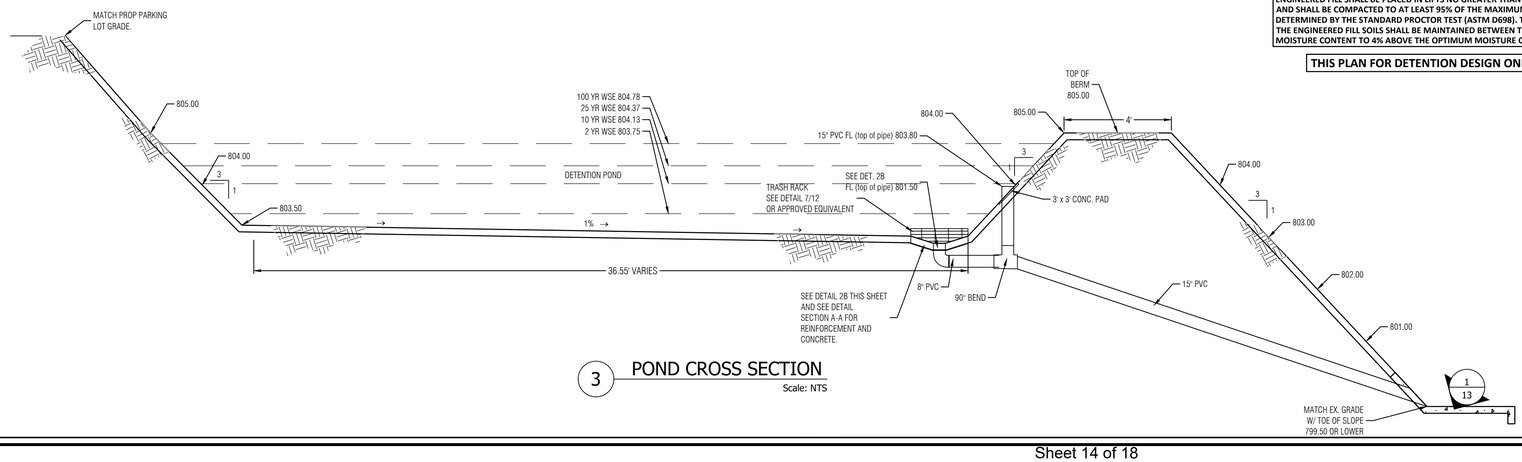


1 HEDWALL DETAIL
Scale: NTS



2B 10"PVC.W/9.5"-RESTRICTOR.PLATE
Scale: NTS

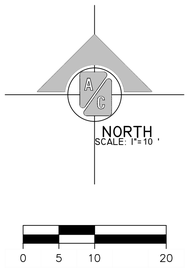
THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.



3 POND CROSS SECTION
Scale: NTS

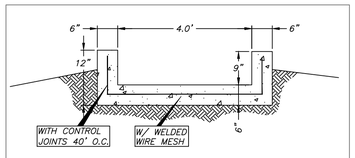
ENGINEERED FILL SOILS PLACED TO CREATE AN EARTHEN BERM SHOULD CONSIST OF CLAYEY SOILS WITH A PLASTICITY INDEX (PI) LESS THAN 40, AT LEAST 70% PASSING THE NO. 200 SIEVE, A MAXIMUM GRAVEL CONTENT (PERCENTAGE RETAINED ON NO. 4 SIEVE) OF 25%, AND A MAXIMUM PARTICLE SIZE OF 1". ENGINEERED FILL SOILS SHOULD BE PLACED IN RELATIVELY HORIZONTAL LIFTS AND BENCHED INTO UNDISTURBED SOILS ON EITHER SIDE OF THE BERM. THE ENGINEERED FILL SHALL BE PLACED IN LIFTS NO GREATER THAN 8" IN THICKNESS AND SHALL BE COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR TEST (ASTM D698). THE MOISTURE OF THE ENGINEERED FILL SOILS SHALL BE MAINTAINED BETWEEN THE OPTIMUM MOISTURE CONTENT TO 4% ABOVE THE OPTIMUM MOISTURE CONTENT VALUE."

THIS PLAN FOR DETENTION DESIGN ONLY.



LEGEND

- 1/2" ROD FOUND
- WIRE FENCE
- ( ) RECORD INFORMATION
- UTILITY POLE
- OH OVERHEAD UTILITY LINE(S)
- ELECTRIC RISER
- SEPTIC PUMP
- CLEAN OUT
- SEPTIC LID
- AIR CONDITIONER
- △ 60D NAIL SET FOR POINT ON LINE



4 CONCRETE FLUME
Scale: NTS

AUSTIN CIVIL ENGINEERING, INC.
TBPE FIRM # F-0010018
9501 B MENCHACA RD, SUITE. 220
AUSTIN, TX 78748
PH: (512) 306-0018

STATE OF TEXAS — HOWARD HUNTER SHADBURNE — 74382 — REGISTERED PROFESSIONAL ENGINEER
10/5/20

SPIRIT IN THE HILLS CHURCH
2106 BEE CREEK ROAD
SPICEWOOD, TRAVIS COUNTY, TEXAS

REVISIONS		
REV. DATE:	DESCRIPTION	APPROVED BY

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SCALE:	

SOUTH POND

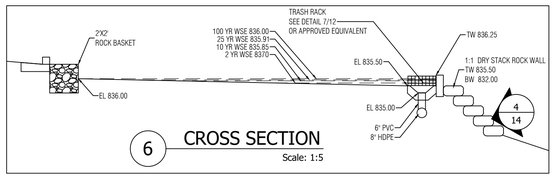
SITE CIVIL PLAN — 13 OF __

Spirit of the Hills - North Pond
DETENTION POND OUTFLOW Structure

# pipes	4				L (ft) =	0.00		
Dia - in	3.000	input inches			H (ft) =			
Dia - ft	0.250							
Orifice	0.6	**Weir**	C=3.0	Weir	C=3.0	**Total**		
A sft =	**0.196**	**L (ft) =**	**3.00**	**L (ft) =**	**1.00**	**Flow**		
835.00	flowline	**835.80**	flowline	**999.00**	flowline			

Orifice H
note orifice flat (to top of pipe)

elevation	H	Q (cfs)	H	Q (cfs)	H	Q (cfs)	Q (cfs)	elevation
835.00	0.00	**0.00**	0.00	**0.00**	0.00	**0.00**	**0.00**	835.00
835.05	0.05	**0.21**	0.00	**0.00**	0.00	**0.00**	**0.21**	835.05
835.25	0.25	**0.47**	0.00	**0.00**	0.00	**0.00**	**0.47**	835.25
835.30	0.30	**0.52**	0.00	**0.00**	0.00	**0.00**	**0.52**	835.30
835.35	0.35	**0.56**	0.00	**0.00**	0.00	**0.00**	**0.56**	835.35
835.40	0.40	**0.60**	0.00	**0.00**	0.00	**0.00**	**0.60**	835.40
835.45	0.45	**0.63**	0.00	**0.00**	0.00	**0.00**	**0.63**	835.45
835.50	0.50	**0.67**	0.00	**0.00**	0.00	**0.00**	**0.67**	835.50
835.55	0.55	**0.70**	0.00	**0.00**	0.00	**0.00**	**0.70**	835.55
835.60	0.60	**0.73**	0.00	**0.00**	0.00	**0.00**	**0.73**	835.60
835.65	0.65	**0.76**	0.00	**0.00**	0.00	**0.00**	**0.76**	835.65
835.70	0.70	**0.79**	0.00	**0.00**	0.00	**0.00**	**0.79**	835.70
835.75	0.75	**0.82**	0.00	**0.00**	0.00	**0.00**	**0.82**	835.75
835.80	0.80	**0.85**	0.00	**0.00**	0.00	**0.00**	**0.85**	835.80
835.85	0.85	**0.87**	0.05	**0.10**	0.00	**0.00**	**0.97**	**835.85**
835.90	0.90	**0.90**	0.10	**0.28**	0.00	**0.00**	**1.18**	835.90
835.95	0.95	**0.92**	0.15	**0.52**	0.00	**0.00**	**1.44**	835.95
836.00	1.00	**0.95**	0.20	**0.80**	0.00	**0.00**	**1.75**	836.00
836.05	1.05	**0.97**	0.25	**1.12**	0.00	**0.00**	**2.09**	836.05
836.10	1.10	**0.99**	0.30	**1.48**	0.00	**0.00**	**2.47**	836.10
836.15	1.15	**1.01**	0.35	**1.86**	0.00	**0.00**	**2.88**	836.15
836.20	1.20	**1.04**	0.40	**2.28**	0.00	**0.00**	**3.31**	836.20
836.25	1.25	**1.06**	0.45	**2.72**	0.00	**0.00**	**3.77**	836.25



6 CROSS SECTION
Scale: 1:5

5 GRATE INLET
Scale: NTS

LEGEND

- 1/2" ROD FOUND
- WIRE FENCE
- ( ) RECORD INFORMATION
- UTILITY POLE
- OH OVERHEAD UTILITY LINE(S)
- ELECTRIC RISER
- SEPTIC PUMP
- CLEAN OUT
- SEPTIC LID
- AIR CONDITIONER
- △ 60D NAIL SET FOR POINT ON LINE

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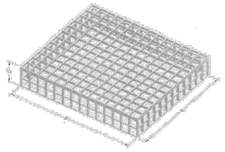
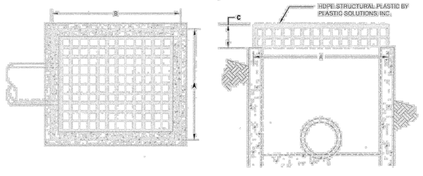
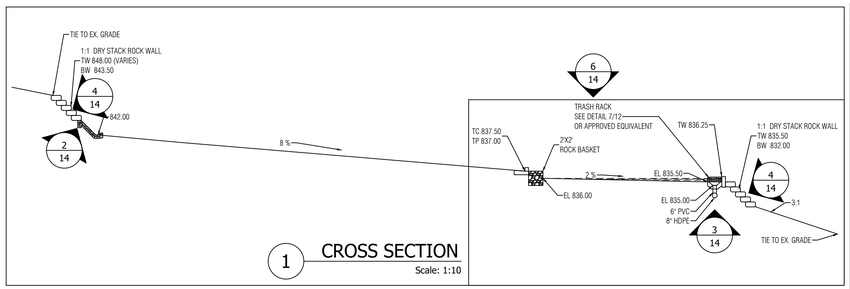
StormRax™
FLAT ROOF RECTANGULA RACKS/WEIRS
(STANDARD SIZES)
DIMENSIONS IN INCHES





7 TRASH RACK
Scale: NTS



1 CROSS SECTION
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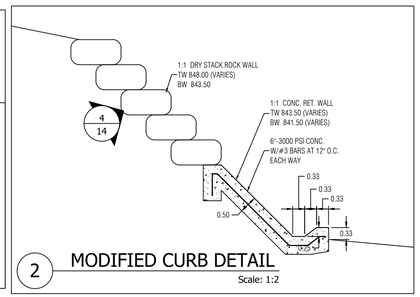
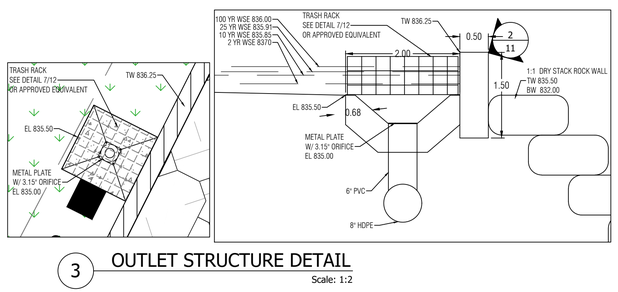


2 MODIFIED CURB DETAIL
Scale: 1:2



3 OUTLET STRUCTURE DETAIL
Scale: 1:2

4 DRY STACK ROCK WALL
Scale: NTS

AUSTIN CIVIL ENGINEERING, INC.
TBPE FIRM # F-001018
9501 B MENCHACA RD, SUITE. 220
AUSTIN, TX 78748
PH: (512) 306-0018

SPIRIT IN THE HILLS CHURCH
2106 BEE CREEK ROAD
SPICEWOOD, TRAVIS COUNTY, TEXAS

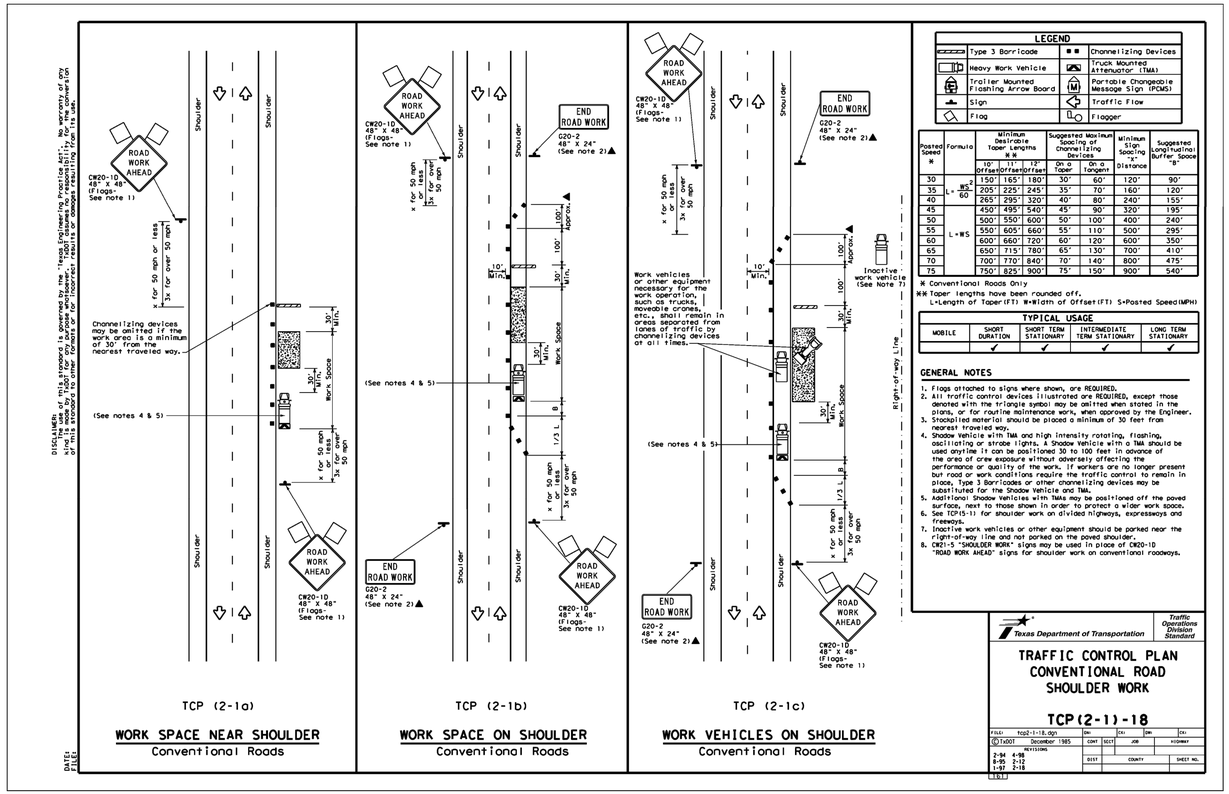
REVISIONS			
REV.	DATE	DESCRIPTION	APPROVED BY

JOB: 19-048		DATE: 10/5/20	
CAD: DA/AM		CHK'D BY:	
ENGINEER: HS		CHK'D BY:	
SCALE:			

NORTH POND

SITE CIVIL PLAN

14 OF __



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

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	L= WS²/60	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45		450'	495'	540'	45'	90'	320'	195'
50	L=WS	500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

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

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

GENERAL NOTES

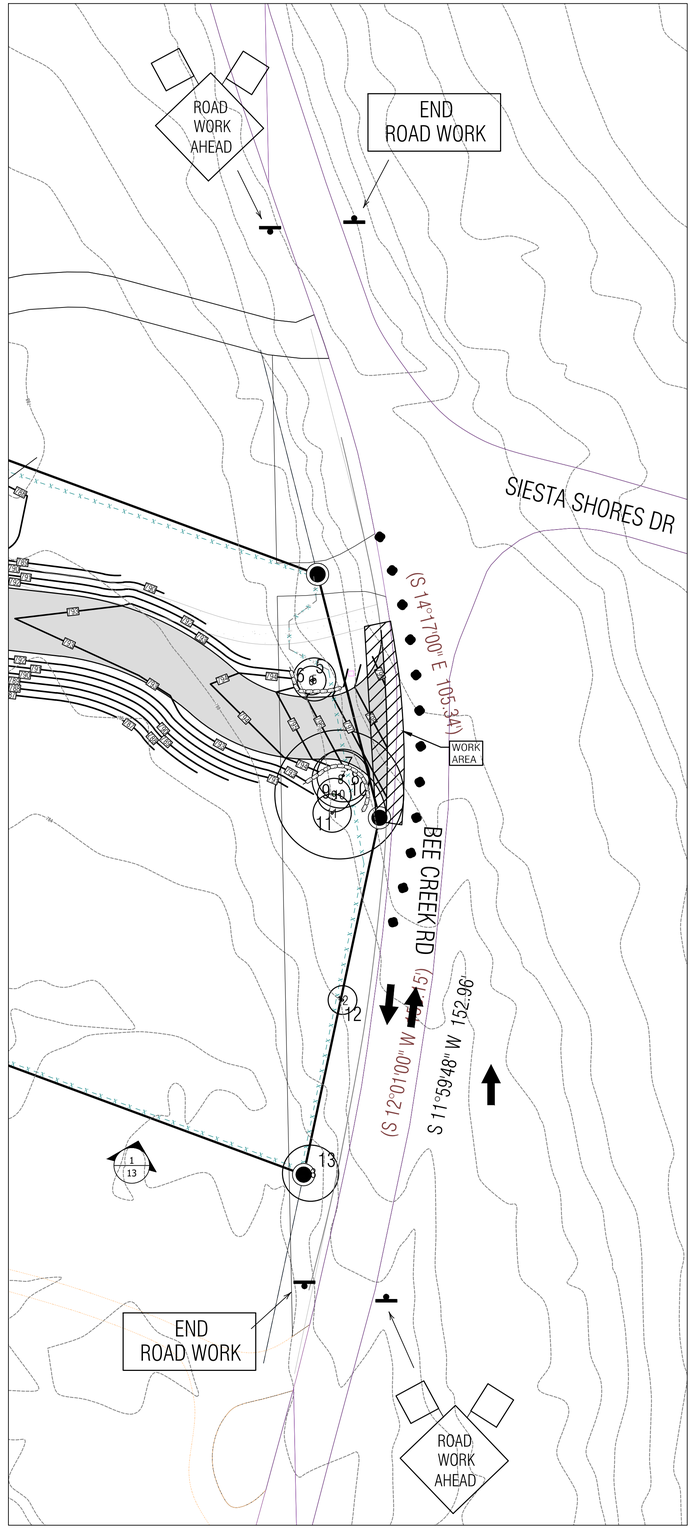
1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated in the plans, or for routine maintenance work, when approved by the Engineer.
3. Stockpiled material should be placed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

Texas Department of Transportation — Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
CONVENTIONAL ROAD SHOULDER WORK
TCP(2-1)-18

FILE:	tcp2-1-18.dgn	DN:	CK:	DW:	CK:
©TxDOT	December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS					
2-94 4-98		DIST	COUNTY		SHEET NO.
8-95 2-12					
1-97 2-18					

CWLJ



NORTH
SCALE: 1"=30'
0 15 30 60

AUSTIN CIVIL ENGINEERING, INC.
TBPE FIRM # F-001018
9501 B MENCHACA RD, SUITE 220
AUSTIN, TX 78748
PH: (512) 306-0018

HOWARD HUNTER SHADRINE 74382 LICENSED PROFESSIONAL ENGINEER
10/5/20

SPIRIT IN THE HILLS CHURCH
2106 BEE CREEK ROAD
SPICEWOOD, TRAVIS COUNTY, TEXAS

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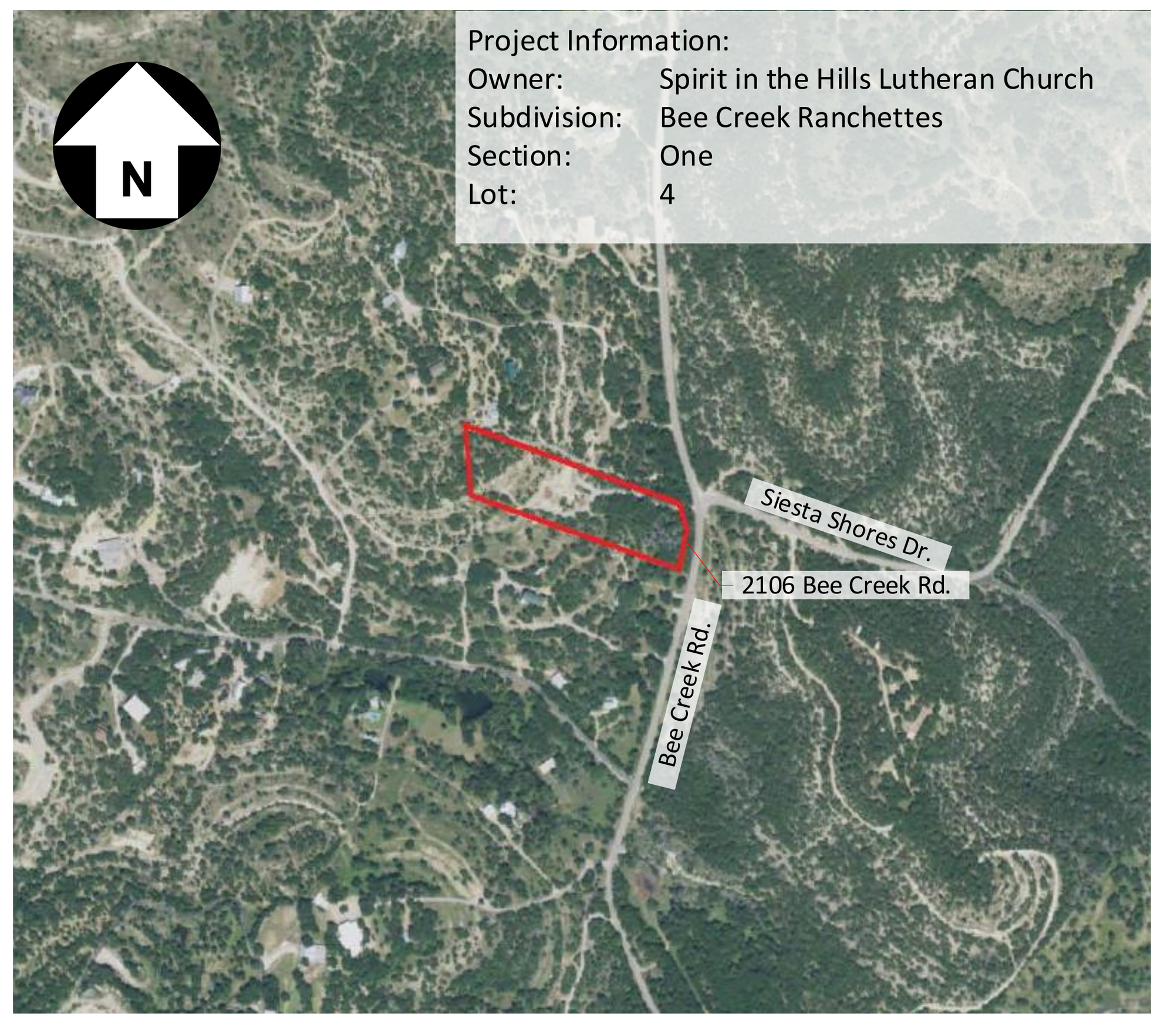
ENGINEER: HS		CHK'D BY:	
SCALE:			

TRAFFIC CONTROL PLAN

SITE CIVIL PLAN — 15 OF __

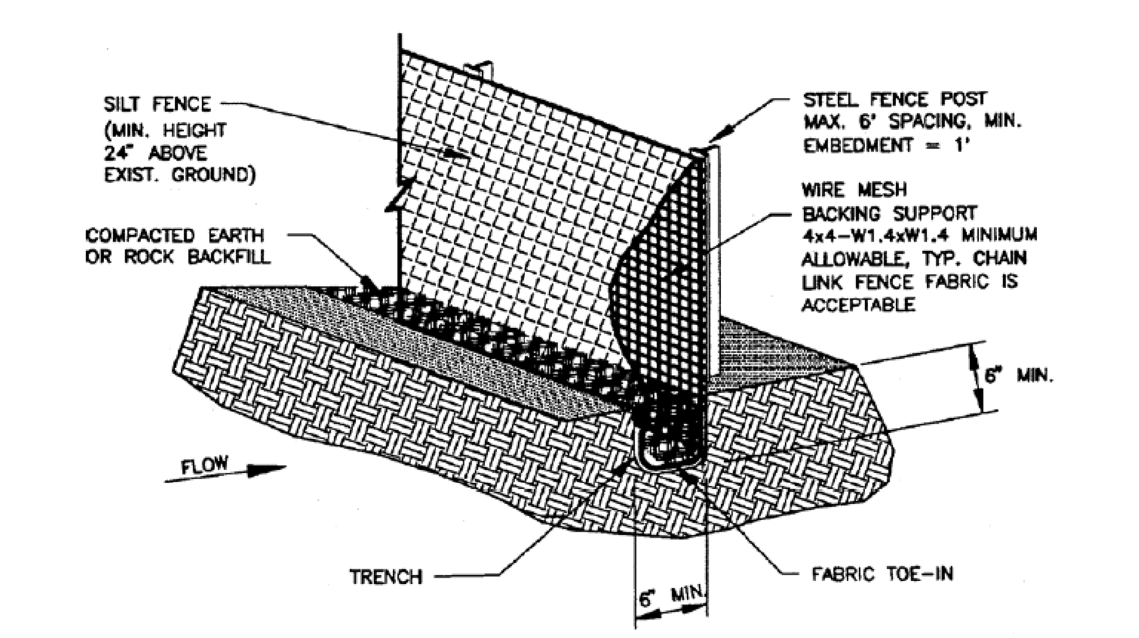
Site Location



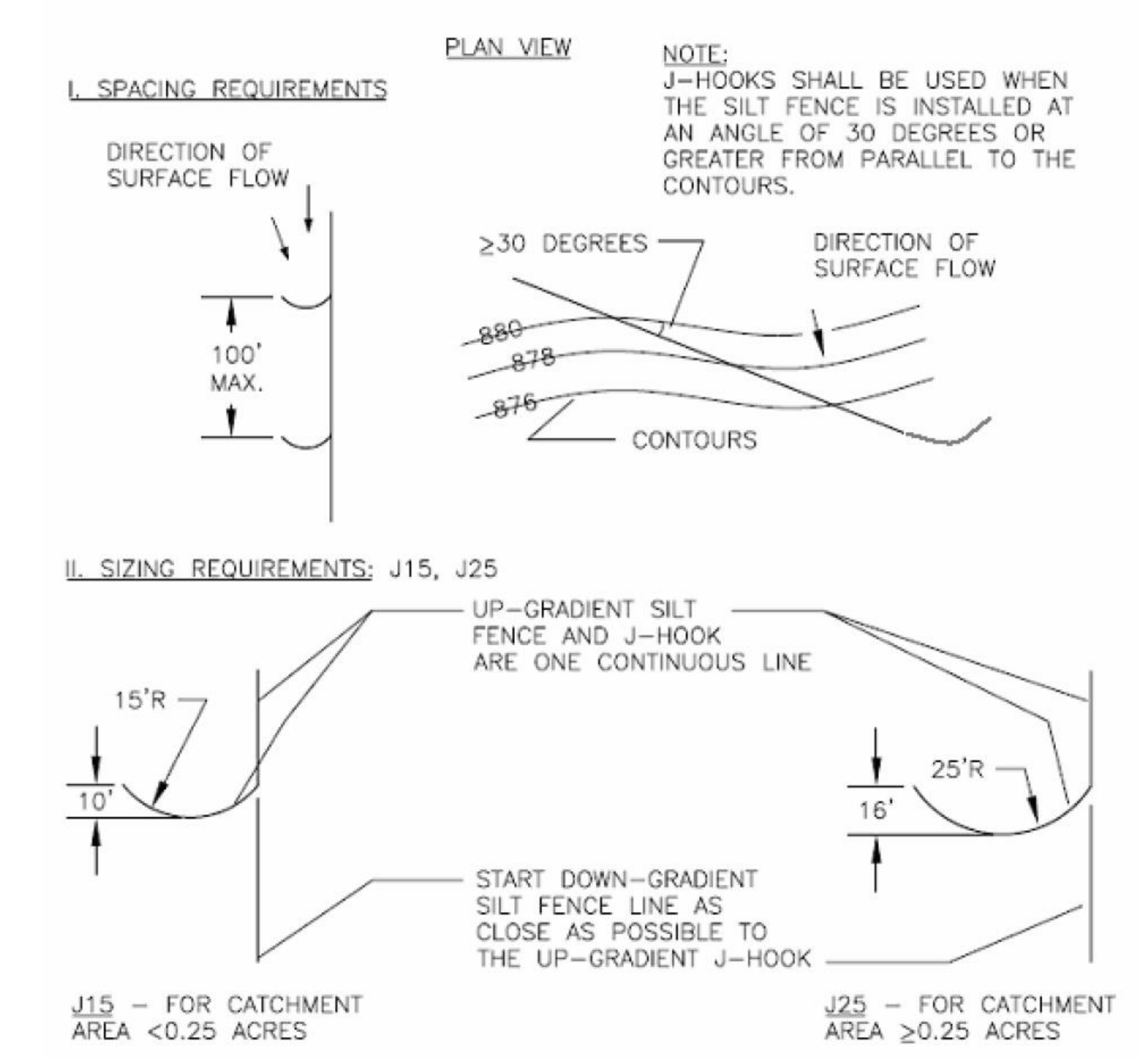
Silt Fence Specifications

1.0 Silt fence shall be provided where indicated on attached drawing.
2.0 Fabric shall consist of woven polypropylene, 36" in width and fastened to hardwood posts with three (3), one inch (1") wide crown staples.
3.0 Posts shall be of sound hardwood, forty eight inches (48") in length with a minimum cross section of 1.125 square inches. Softwood posts shall not be used
4.0 Posts shall be positioned vertically at a distance not to exceed ten feet (10') on center for the entire length of the silt fence.
5.0 Soil shall be trenched to allow six inches (6") of the silt fence fabric to fall below grade. Posts shall be driven a minimum of eighteen inches (18") below natural grade to allow six inches (6") of material to extend into the trench. Trench shall be backfilled to original grade, leaving a minimum of six inches (6") of fabric below finish grade. If the silt fence is installed on a slope, the posts shall be positioned on the downward side. If the silt fence is installed on a level site, the posts shall be installed to the outside of the Silt Fence.
6.0 Connection/joining of silt fences shall be completed by tightly overlapping the ends of the rolls a minimum of twelve inches (12") or by overlapping the end posts and securing the two posts together tightly with plastic wire ties and/or steel bailing wire.

Silt Fence Installation Detail



Silt Fence J-Hook Installation Detail



Legend

- Silt Fence
- 10" Mulch Sock – Stake 10' O.C.
- Limits of Construction

Septic System Calculations and Notes

Existing System Specifications:
1500 Gallon 2 Compartment Holding Tank with 500 Gallon Pre Treatment and 1000 Gallon Dosing.
AA600W-4075 Treatment Tank with 400 Gallon Pre Treatment, 694 Gallon Aeration, 262 Gallon Clarifier and 750 Gallon Pump Tank.
(2) K-Rain 11003 RCW Sprinkler Heads with #3 nozzle 28' Radius
Soil Class IV – 1' of Silty Clay and Clay Soils over limestone. Limestone extends down to a depth over 146 feet per water well drilling report dated 04/22/16. Classifications of limestone vary from Tan to White Tan to Gray Tan down to a drilling depth of 146' at what point other types of soil are found.
Water Savings Devices Installed
Original system design attached.

Maximum Church Occupancy = 139 Persons(Max seats of 129 + 10 worship assistants)
Existing Home/New Church Office – To be used only as an office building, not a residence with 2 employees.
Worship Daily Usage Rate = 4 Gal/Day/Person(Seat) (Per 285.91 Table III Wastewater Usage Rate – Theaters)
Only one worship service per week.
Other 5 days, Occupancy is only 2 employees for office use = 8 Gal/Day/Employee (Per 285.91 Table III)
Q(max) = 4 X 139 X 1 day/week + 8 X 2 X 5 days/week = 636 gallons/week.

Showers and washing machines not to be used.
There is no know rainwater collection system.
1500 Gallon Holding Tank more than adequate for 2 day effluent holding.
Tank can be emptied over 2 day period = 318 Gal per day.
Q(2 day average) = 318 Gal per day.

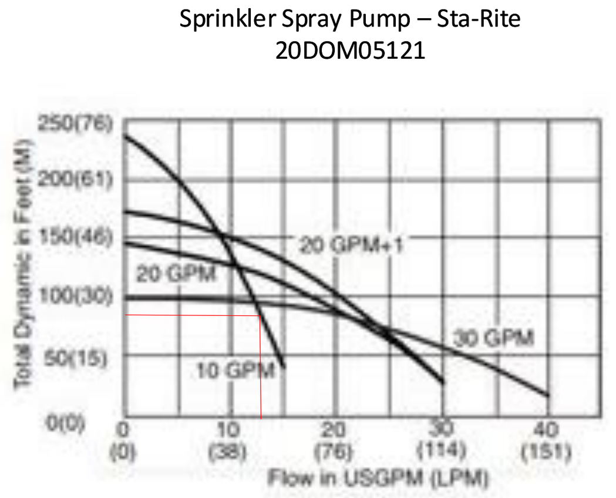
Required Spray Area (A)
A = Q/R
R = .064 Gal/SF/Day
A(required)= 318/.064 = 4968.8 S.F.

Existing heads located in proposed detention pond area and have to be relocated.
28' Radius Sprinkler Head with 180 deg spray = 1231.5 S.F.
28' Radius Sprinkler Head with 180 deg spray overlapping = 753 S.F.
22' Radius Sprinkler Head with 180 deg spary = 760.3 S.F.
(3) 28' Radius and (1) 22' Radius 180 deg heads = 5040.1 S.F. > 4968.8 S.F. required.

Flow Requirements
5 Hour Max Run Time – Use 2 Hours for calculations for factor of safety
Required Flow = 318 gallons/2 hours/60 min/hour = 2.7 GPM
Adding losses for 300 Ft of 1 ¼" PVC pipe at 10 GPM (1.6 Ft/100 Ft) and 23' of elevation change = 27.8 Ft of head loss.
Add delivery pressure of 25 psi (57.8 Ft) and total head on pump = 85.6 Ft
Using Sta-Rite 20DOM05121 10 GPM pump curve total expected flow = 13 GPM > 2.7 GPM, OK
K Rain 1100E-RCS head flow 2.3 GPM each at 25 psi and are good for a 29' radius. 4 heads X 2.3 = 9.2 GPM <13 GPM, OK

Notes:
1. All sprinkler heads and piping to be purple sch 40 for septic systems.
2. Existing commercial timer to be set to run effluent spray pump between midnight and 5:00 A.M.
3. Effluent discharge piping to be buried 1" below grade. All road crossings to be sleeved.
4. Installation must meet the latest TCEQ rules and regulations.

Sprinkler Spray Pump – Sta-Rite 20DOM05121



Picture showing existing risers and covers. Existing risers are similar to a Tuf-Tite HDPE Reinforced plastic riser with screw down lids. Note the edge of road will be over 9' from the risers.

K Rain 11003-RCW ProPlus Low Angle Heads

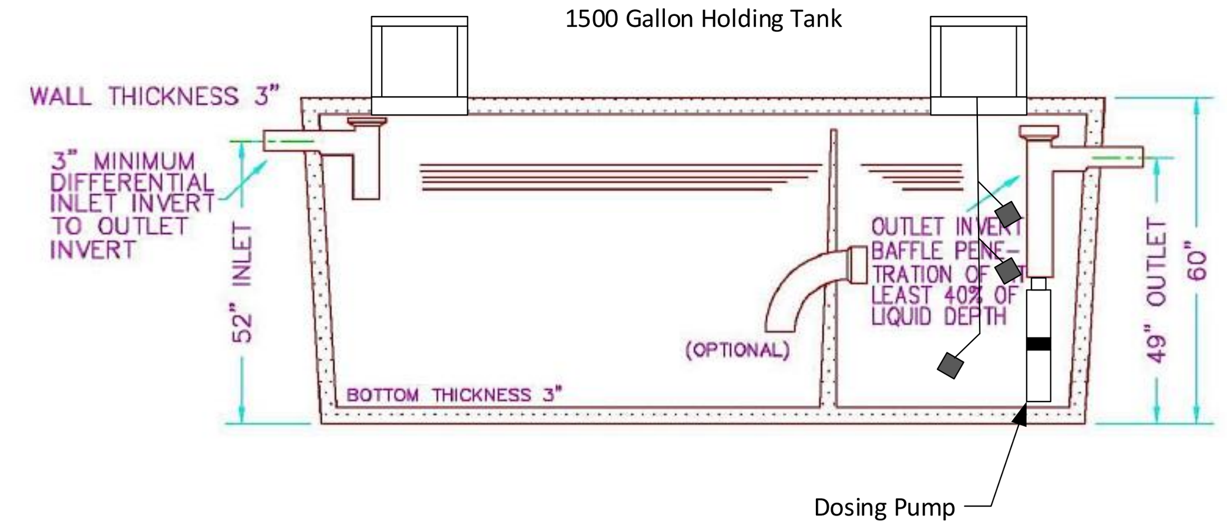
K RAIN
Nozzle Chart

Low Angle Nozzles (Green)

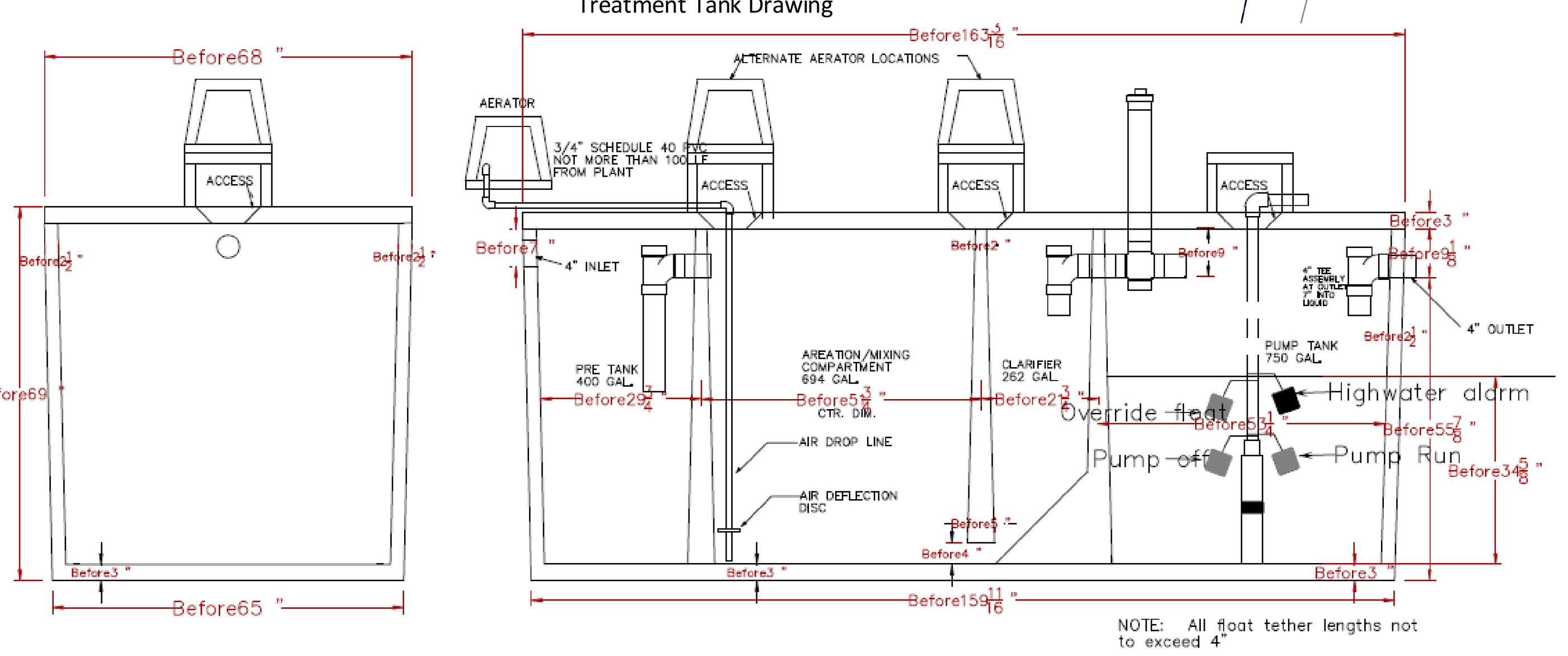
Nozzle	PSI	Radius	Flow
1	25	25	1.1
	20	23	1.0
	15	20	0.9
3	25	29	2.3
	20	25	2.0
	15	21	1.6
4	25	30	3.7
	20	27	3.2
	15	22	2.7
6	30	33	5.8
	25	31	5.0
	20	27	4.3
	15	20	3.6
*	10	12	2.5

* Little to no break-up coverage

1500 Gallon Holding Tank



Treatment Tank Drawing



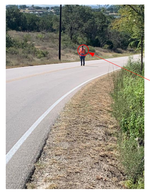
0 ft. 30 ft. 50 ft. 100 ft.

REV.	DESCRIPTION	DATE	BY

Lake Travis Engineering and Inspection LLC
TBPE Firm No. 10248 / 512 633 7097

2106 Bee Creek Rd
Septic Modifications Plan

Scale: 1"= 30'
Date: 05/07/20
SIZE: E
DWG NO: 16
SHEET 1 OF 1



194.4' Right sight line from vehicle existing site.

194.4' Left sight line from vehicle existing site.

194.4' Left Sight Lines

194.4' Left sight line from vehicle on Bee Creek to object in road in front of site entrance.

Existing Driveway Exit Location.

Proposed Driveway Exit Location.

194.4' Right Sight Lines

194.4' Right sight line from vehicle on Bee Creek to object in road in front of site entrance.

Bee Creek Rd

Siesta Shores Dr.

Edge to edge between Siesta Shores and proposed driveway

0'
0" Grade EL

50'
27" Grade EL

100'
41" Grade EL

150'
46" Grade EL

200'
52" Grade EL

250'
55" Grade EL

300'
61" Grade EL

350'
71" Grade EL

50'
-20" Grade EL

100'
-52" Grade EL

150'
-80" Grade EL

200'
-112" Grade EL

250'
-145" Grade EL

300'
-174" Grade EL

350'
-200" Grade EL

400'
-222" Grade EL

Plan View

Project Notes:
1. Type II driveway details found on Proposed Site Plan sheet 03 and Paving details sheet 09.
2. Temporary construction traffic control plan is shown on the Traffic Control Plan sheet 15.
3. From the Austin Transportation Criteria Manual, Table 5.3.1 (K), the required spacing between road and driveway for Minor Collector is 80 Ft.

Desired Minimum Sightline Calculations
Per AASHTO Equation 3-1 the braking distance/sight lines were calculated:

$d_{brake} = 1.075\ V^2/a$ AASHTO Equation 3-1

Where
V = 45 MPH (Posted Speed)
a = 11.2 ft/s^2 Listed as recommendation– AASHTO Chapter 3

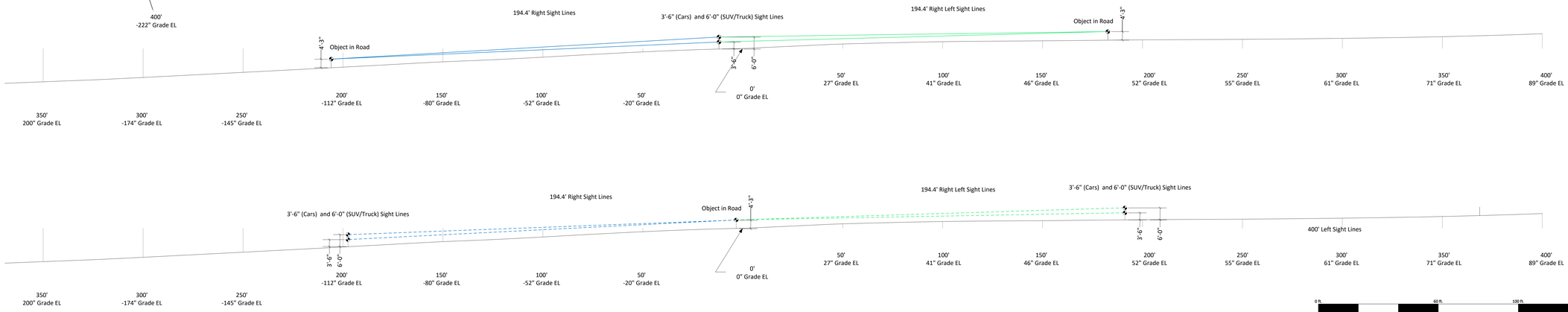
d_{brake} = 194.4 Ft.

Left Sightline with Proposed Driveway Location – Vehicle Existing Driveway

Right Sightline with Proposed Driveway Location – Vehicle Existing Driveway

Left Sightline with Proposed Driveway Location – Vehicle on Bee Creek Rd. with object in road.

Right Sightline with Proposed Driveway Location – Vehicle on Bee Creek Rd. with object in road.



Elevation/Contour View

0 ft. 60 ft. 100 ft. 200 ft.

STATE OF TEXAS
Sidney L. Maxwell II
80644
LICENSED PROFESSIONAL ENGINEER
Date: 09/19/21

REV.	DESCRIPTION	DATE	BY

Lake Travis Engineering and Inspection LLC
TBPE Firm No. 10248 / 512 633 7097

2106 Bee Creek Rd
Site Entrance Sight Lines

Scale: 1in = 20ft. 0in.
Date: 09/19/21

SIZE E | FSCM NO | DWG NO 17 | REV
SCALE 1in = 20ft. 0in. | SHEET 1 OF 1