TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

December 29, 2014

RECEIVED

DEC 31 2014

COUNTY ENGINEER

Mr. Thomas H. Hornseth, P.E.
Comal County Engineer
195 David Jonas Drive
New Braunfels TX 78132-3710

Re: Edwards Aquifer, Comal County
PROJECT NAME: Bulverde Retail Center, located on the northwest corner of Bulverde Road and Saddle Ridge Drive, Bulverde, Texas

PLAN TYPE: Application for Contributing Zone Water Pollution Abatement Plan (CZP)
30 Texas Administration Code (TAC) Chapter 213; Edwards Aquifer Protection Program
EAPP Additional ID.: 13-14121902

Dear Mr. Hornseth:

The referenced application is being forwarded to you pursuant to the Edwards Aquifer Rules. The Texas Commission on Environmental Quality (TCEQ) is required by 30 TAC Chapter 213 to provide copies of all applications to affected incorporated cities and underground water conservation districts for their comments prior to TCEQ approval. More information regarding this project may be obtained from the TCEQ Central Registry website at http://www.tceq.state.tx.us/permitting/central_registry/.

Please forward your comments to this office by January 29, 2015.

The Texas Commission on Environmental Quality appreciates your assistance in this matter and your compliance efforts to ensure protection of the State's environment. If you or members of your staff have any questions regarding these matters, please feel free to contact the San Antonio Region Office at (210) 490-3096.

Sincerely

Todd Jones

Todd Jones
Water Section Work Leader
San Antonio Regional Office

TJ/eg

Contributing Zone Plan Application
for Regulated Activities
on the Contributing Zone to the Edwards Aquifer
and Relating to 30 TAC §213.24(1), Effective June 1, 1999

Regulated Entity Name: Bulverde Retail Center
County: Comal Stream Basin: San Antonio River Basin

1. X Regulated activities on this site will disturb at least 5 acres.
___ Regulated activities on this site will disturb less than 5 acres and are part of a larger common plan of development or sale with the potential to disturb cumulatively five or more acres.

2. Customer (Applicant):

TCEQ R13
DEC
SAN ANTONIO

Contact Person: Roy or Shelly Ekland
Entity: Bulverde Hills Properties, LLC
Mailing Address: P.O. Box 89
City, State: Bulverde, TX Zip: 78163
Telephone: 830-237-2679 FAX: 830-980-8650

Agent/Representative (If any):

Contact Person: Xavier Torres PE
Entity: Torres Engineering
Mailing Address: 5503 Grissom Rd., Ste. 101
City, State: San Antonio, TX Zip: 78238
Telephone: 210 680 0808 FAX:
Xtorres@torresengineering.net

3. X This project is inside the city limits of Bulverde.
___ This project is outside the city limits but inside the ETJ (extra-territorial jurisdiction) of _____.
__ This project is not located within any city's limits or ETJ.

4. 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.
Project is located at the northwest corner of Bulverde Rd (FM 1863) and Saddle Ridge Dr.

5. X **ATTACHMENT A - Road Map.** A road map showing directions to and the location of the project site is found as at the end of this form.

6. X **ATTACHMENT B - USGS Quadrangle Map.** A copy of the USGS Quadrangle Map (Scale: 1" = 2000') is found at the end of this form. The map(s) clearly shows:
__ Project site boundaries.
__ USGS Quadrangle Name(s).

7. X **ATTACHMENT C - Project Narrative.** A detailed narrative description of the proposed project is found at the end of this form.

8. Existing project site conditions are noted below:

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

PROJECT INFORMATION

9. The type of project is:
__ Residential: # of Lots: _____
__ Residential: # of Living Unit Equivalents: _____
X Commercial
__ Industrial
__ Other: _____

10. Total project area (size of site): 1.9788 Acres
Total disturbed area: 1.9788 Acres

11. Projected population: 15

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

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	15,300.00	÷ 43,560 =	0.3512
Parking	31,940.54	÷ 43,560 =	0.7332
Other paved surfaces	2,028.15	÷ 43,560 =	0.0466
Total Impervious Cover	49,268.69	÷ 43,560 =	1.131
Total Impervious Cover ÷ Total Acreage x 100 =			57.15%

13. X **ATTACHMENT D - Factors Affecting Surface Water Quality.** A description of factors that could affect surface water quality is found as at the end of this form. If applicable, this should included the location and description of any discharge associated with industrial activity other than construction.

14. X Only inert materials as defined by 30 TAC 330.2 will be used as fill material.

FOR ROAD PROJECTS ONLY
Complete questions 15-20 if this application is exclusively for a road project.

15. 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.

16. Type of pavement or road surface to be used:
    - __ Concrete
    - __ Asphaltic concrete pavement
    - __ Other: _____

17. Length of Right of Way (R.O.W.): _____ feet.
    Width of R.O.W.: _____ feet.
    L x W = _____ Ft^2 ÷ 43,560 Ft^2/Acre = _____ acres.

18. Length of pavement area: _____ feet.
    Width of pavement area: _____ feet.
    L x W = _____ Ft^2 ÷ 43,560 Ft^2/Acre = _____ acres.
    Pavement area _____ acres ÷ R.O.W. area _____ acres x 100 = _____% impervious cover.

19. __ A rest stop will be included in this project.
    __ A rest stop will **not** be included in this project.

20. __ 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

21. _X_ **ATTACHMENT E - Volume and Character of Stormwater.** A description of the volume and character (quality) of the stormwater runoff which is expected to occur from the proposed project is found at the end of this form. The estimates of stormwater runoff quality and quantity are based on area and type of impervious cover. The runoff coefficient of the site for both pre-construction and post-construction conditions is included.

WASTEWATER TO BE GENERATED BY THE PROPOSED PROJECT

22. Wastewater will be disposed of by:

    _X_ 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 written approval is provided at the end of this form. 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, or it identifies those areas that are not suitable for the use of private sewage facilities. The system will be designed by a licensed professional engineer or a registered sanitarian and installed by a licensed installer in compliance with 30 TAC §285.

    __ Sewage Collection System (Sewer Lines):
    Wastewater is to be disposed of by conveyance to the (name) treatment plant for treatment and disposal. The treatment facility is: _____
    - __ existing.
    - __ proposed.

__ 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.

FOR PERMANENT ABOVEGROUND STORAGE TANKS (ASTs) ≥ 500 GALLONS
Complete questions 23-29 if this project includes the installation of AST(s) with volume(s) greater than or equal to 500 gallons.

23. Tanks and substance stored:

AST Number	Size (Gallons)	Substance to be Stored	Tank Material
1			
2			
3			
4			
5			
Total		x 1.5 =	gallons

24. __ 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 found at the end of this form.

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

Length (L) (Ft.)	Width (W) (Ft.)	Height (H) (Ft.)	L x W x H = (Ft^3)	Gallons
Total				

26. __ 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

27. __ 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 _____.

28. **ATTACHMENT H - AST Containment Structure Drawings.** A scaled drawing of the containment structure is found at the end of this form 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

29. 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

Items 30 through 41 must be included on the Site Plan.

30. The Site Plan must have a minimum scale of 1" = 400'.
Site Plan Scale: 1" = 20 '.

31. 100-year floodplain boundaries

___ Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled.
_X_ 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):

_____
_____
_____

32. _X_ 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.

33. _n/a_ A drainage plan showing all paths of drainage from the site to surface streams.

34. _X_ The drainage patterns and approximate slopes anticipated after major grading

activities.

35. X Areas of soil disturbance and areas which will not be disturbed.

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

37. X Locations where soil stabilization practices are expected to occur.

38. N/A Surface waters (including wetlands).

39. __ Locations where stormwater discharges to surface water.
X There will be no discharges to surface water.

40. __ Temporary aboveground storage tank facilities.
X Temporary aboveground storage tank facilities will not be located on this site.

41. __ Permanent aboveground storage tank facilities.
X Permanent aboveground storage tank facilities will not be located on this site.

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

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

43. X 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.

X 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 provided below.

_____

_____

44. X 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.

45. n/a 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.

__ This site will be used for low density single-family residential development and has 20% or less impervious cover.

__ This site will be used for low density single-family residential development but has more than 20% impervious cover.

__ This site will not be used for low density single-family residential development.

46. n/a 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.** This 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 found at the end of this form.

__ This site will be used for multi-family residential developments, schools, or small business sites but has more than 20% impervious cover.

__ This site will not be used for multi-family residential developments, schools, or small business sites.

47. **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 provided as **ATTACHMENT J** at the end of this form.

__ If no surface water, groundwater or stormwater originates upgradient from the site and flows across the site, an explanation is provided as **ATTACHMENT J** at the end of this form.

X If 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, an explanation is provided as **ATTACHMENT J** at the end of this form.

48. **ATTACHMENT K - BMPs for On-site Stormwater.**

X 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 provided as **ATTACHMENT K** at the end of this form.

__ If 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, an explanation is provided as **ATTACHMENT K** at the end of this form.

49. N/A **ATTACHMENT L - BMPs for Surface Streams.** A description of the BMPs and measures that prevent pollutants from entering surface streams is provided at the end of this form.

50. X **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. All construction plans and design information have been signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed permanent BMPs and measures are provided at the end of this form. Design Calculations, TCEQ Construction Notes, all proposed structural measures, and appropriate details must be shown on the construction plans.

51. X **ATTACHMENT N - Inspection, Maintenance, Repair and Retrofit Plan.** A plan for the inspection, maintenance, repair, and, if necessary, retrofit of the permanent BMPs and measures is provided at the end of this form. The plan has been prepared and certified by the engineer designing the permanent BMPs and measures. The plan has been signed by the owner or responsible party. The plan includes procedures for documenting inspections, maintenance, repairs, and, if necessary, retrofits as well as a discussion of record keeping procedures.

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

__ Pilot-scale field testing (including water quality monitoring) may be required for BMPs that are not contained in technical guidance recognized by or prepared by the executive director.

__ **ATTACHMENT O - Pilot-Scale Field Testing Plan.** A plan for pilot-scale field testing is provided at the end of this form.

53. N/A **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 provided at the end of this form. 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 increases erosion that result in water quality degradation.

Responsibility for maintenance of permanent BMPs and measures after construction is complete.

54. X 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.

55. X 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

56. X Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional

copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

57. _x_ 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.

58. _x_ 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.

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:

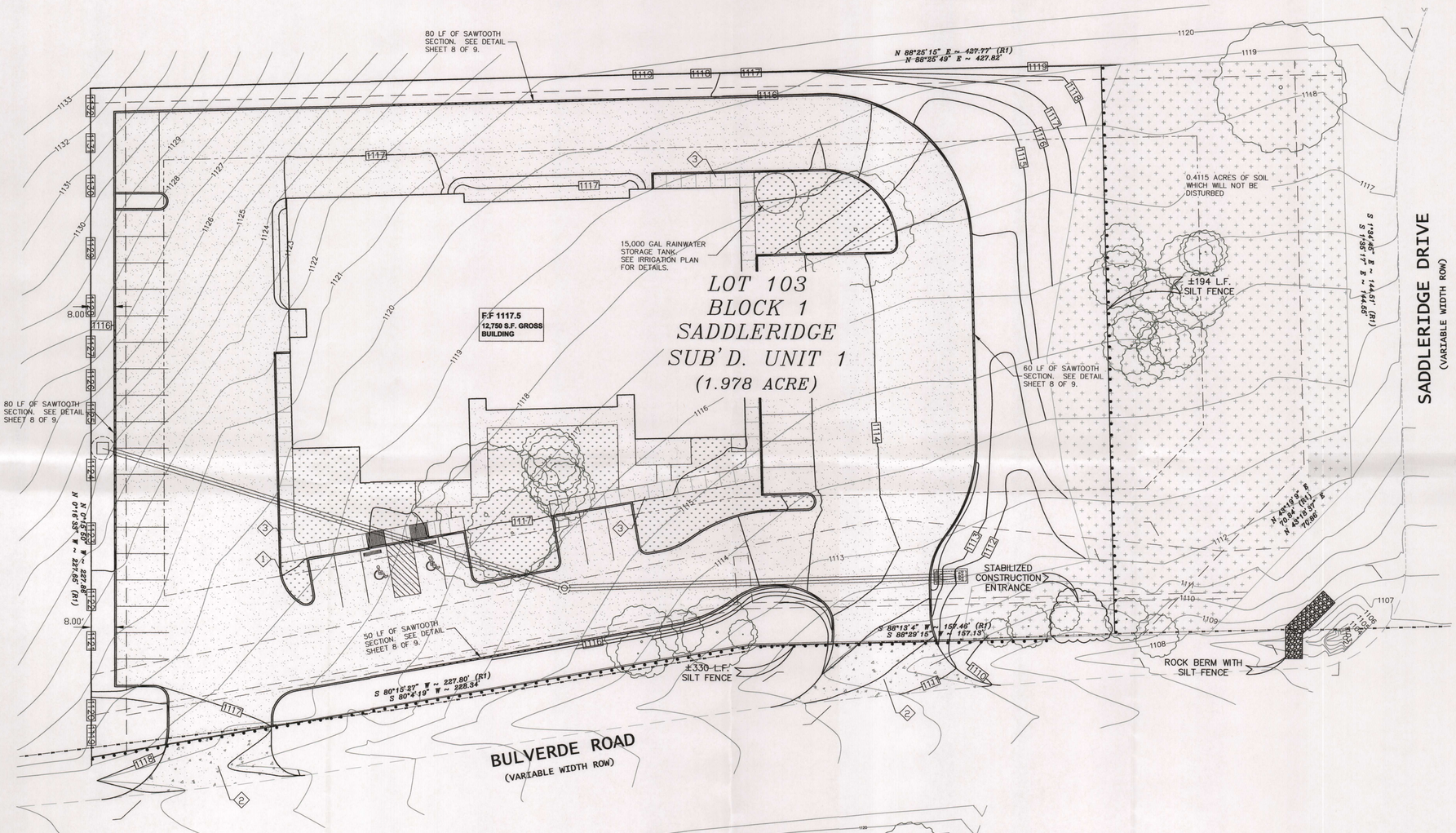
Roy Eklund / Xavier Torres
Print Name of Customer/Agent

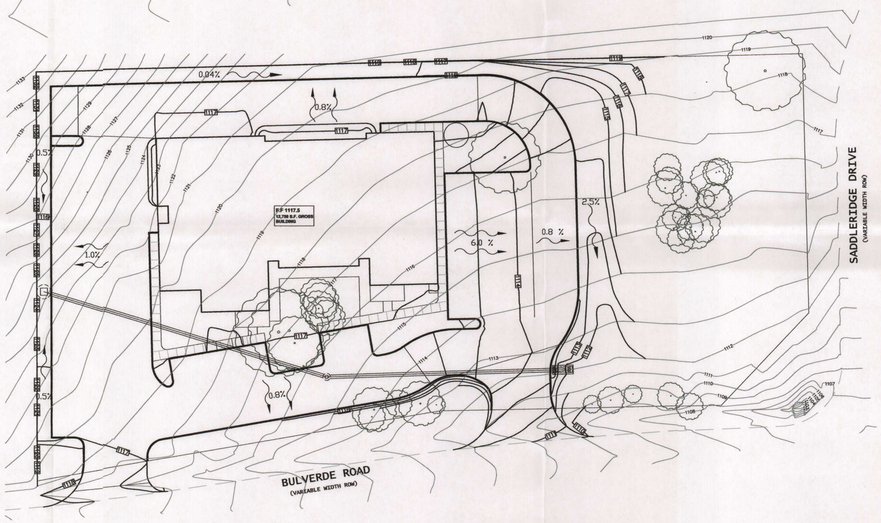
Signature of Customer/Agent

12-16-14
Date

If you have questions on how to fill out this form or about the Edwards Aquifer protection program, please contact us at 210/490-3096 for projects located in the San Antonio Region or 512/339-2929 for projects located in the Austin Region.

Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, contact us at 512/239-3282.





DRAINAGE PATTERNS AND APPROX. SLOPES AFTER GRADING

SCALE:
1 INCH = 40 FT.

LEGEND:

DRAINAGE PATTERNS

1.0 % APPROX. SLOPE

GRAPHIC SCALE

40 0 10 20 40

(IN FEET)
1 inch = 20 ft.

LEGEND:

832 EXISTING CONTOUR

832 FINISHED CONTOUR

CONCRETE

PERMEABLE CONCRETE PARKING LOT

GRASS – AREA OF SOIL STABILIZATION

AREA OF UNDISTURBED SOIL

EXISITNG TREES

NOTES:

1. THE AREA OF DISTURBED SOIL WILL BE LOCATED OUTSIDE OF THE UNDISTURBED AREA WHICH IS APPROXIMATELY 1.55 ACRES.
2. USE LANDLOK 300 PERMANENT TURF REINFORCEMENT MAT FOR SOIL STABILIZATION. SEE CONTECH ENGINEERED SOLUTIONS INSTALLATION GUIDE.

KEY NOTE LIST:

1. CONCRETE CURB. (TYP.).
2. CONCRETE DRIVEWAY.
3. PERMEABLE SIDEWALK.

TEMPORARY BEST MANAGEMENT PRACTICES

ESTIMATED STORM WATER POLLUTION PREVENTION PLAN & TEMPORARY SEDIMENTATION AND EROSION CONTROL PLAN QUANTITIES

ITEM	UNIT	QUANTITY
STABILIZED CONSTRUCTION ENTRANCE	EACH	1
SILT FENCE	L.F.	± 524
ROCK BERM W/ SILT FENCE	L.F.	± 29

TORRES ENGINEERING P.C.
TBPE FIRM # F-13892
5503 GRISSOM RD, STE. 101 (210) 680-0808
SAN ANTONIO, TEXAS 78238

DATE: DEC. 13, 2014
DESIGNED BY: X.A.T.
DRAWN BY: J.D.C.
CHECKED BY: X.A.T.
SCALE: 1" 20'
FILE NAME:

STATE OF TEXAS
XAVIER A. TORRES
93953
LICENSED PROFESSIONAL ENGINEER
12/13/14

REVISIONS

NO.	DATE	DESCRIPTION	BY

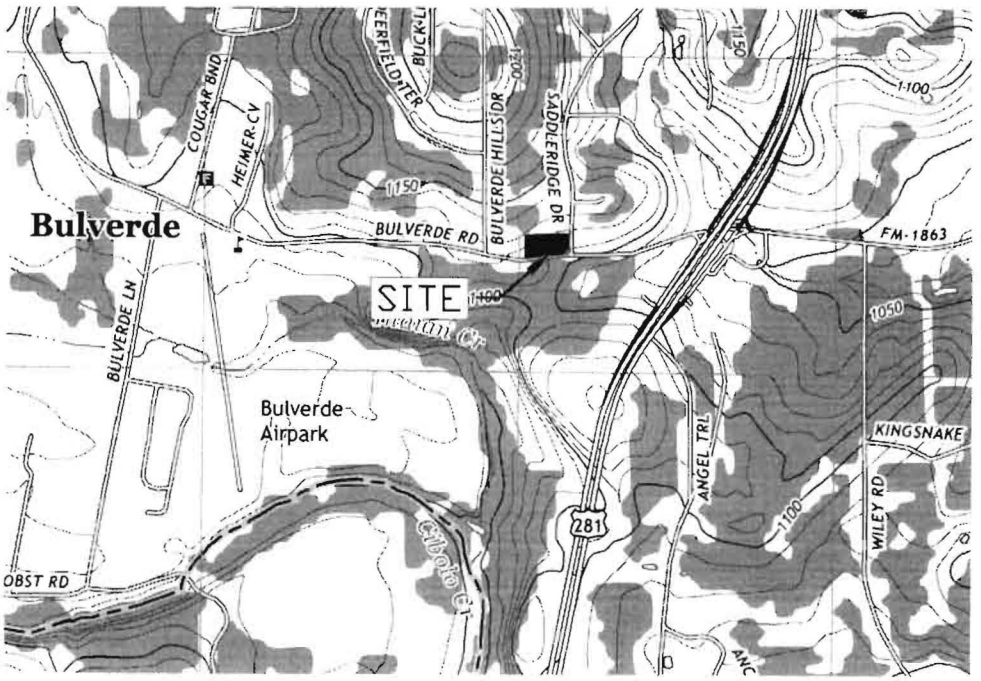
TCEQ SITE PLAN
FOR BULVERDE RETAIL CENTER
2925 BULVERDE RD
BULVERDE, TEXAS

TCEQ SITE

SHEET 1A OF 1

ATTACHMENT A

(Road Map)



ATTACHMENT B

(USGS Quadrangle Map)

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

The National Map
US Topo

BULVERDE QUADRANGLE
TEXAS
7.5-MINUTE SERIES

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
10 000-foot ticks: Texas Coordinate System of 1983 (south central zone)

Imagery........NAIP, May 2010
Roads........©2006-2012 TomTom
Names........GNIS, 2012
Hydrography........National Hydrography Dataset, 2010
Contours........National Elevation Dataset, 2004
Boundaries........Census, IBWC, IBC, USGS, 1972 - 2012

MN
GN
4° 45′
85 MILS
0° 17′
5 MILS

UTM GRID AND 2013 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

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

SCALE 1:24 000

KILOMETERS
METERS
MILES
FEET

CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.7

TEXAS

QUADRANGLE LOCATION

Bergheim	Anhalt	Smithson Valley
Camp Bullis	Bulverde	Bat Cave
Castle Hills	Longhorn	Schertz

ADJOINING 7.5′ QUADRANGLES

ROAD CLASSIFICATION

Interstate Route — State Route
US Route — Local Road
Ramp — 4WD
Interstate Route — US Route — State Route

BULVERDE, TX
2013

ATTACHMENT C

(Project Narrative)

Bulverde Retail Center is a commercial development consisting of a 12,750 square foot building and a 31,938 square foot parking lot. The building will be served by a private septic system and public water. The parking lot will be constructed of pervious concrete. The landscape will be irrigated by conventional means and by harvesting rainwater from the rooftops. The project will also consist of dry utilities such as but not limited to electrical, telephone and or cable services.

ATTACHMENT D

(Factors Affecting Surface Water Quality)

The factors affecting water quality are but not limited to hydrocarbons, such as grease, vehicle/machinery fluid leaks, trash or debris, fertilizers and soil runoff. After construction, the factors affecting water quality are but not limited to runoff from roof tops, paved areas, sidewalks, fertilizers, vehicle fluids and pesticides.

ATTACHMENT E

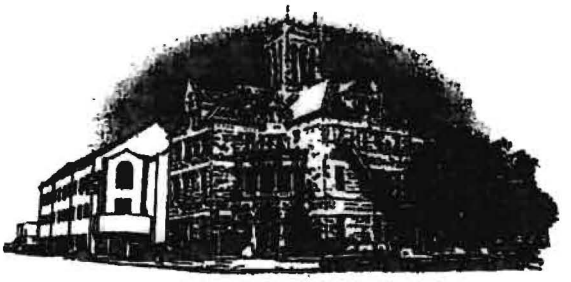
(Volume and Character of Stormwater)

The stormwater runoff generated from this site will consist of runoff from paved areas, roof tops, curbs, sidewalks and undisturbed land. The runoff will contain hydrocarbons, fertilizers/pesticides, suspended solids, and fluids from vehicles. The site is currently undeveloped. Therefore the predevelopment coefficient of runoff is C=52. Since the sidewalks and parking lots will be constructed of permeable concrete and the runoff from the roof tops will be harvested, the only impermeable surface I the sidewalks. Therefore the post development coefficient will be C=47.96.

The Total Suspended Solids (TSS) will be mediated by Permeable Concrete and Rainwater harvesting from roof tops. Therefore, the required TSS removal due to the sidewalks is 16 lbs and the TSS removed by the BMPs is 2237 lbs which brings the Calculated Fraction of Annual Runoff to F=0.00738. After reviewing Table 3-5, we find that the Rainfall Depth is zero. Therefore the required Water Quality Volume is zero. However, the required volume of rainwater due to harvesting is calculated by multiplying the surface area of the rooftops times 1.5 inches. This gives a volume of 1,912.5 ft^3 or 14,305.5 gals.

ATTACHMENT F

(Suitability Letter from Authorized Agent)



Comal County

OFFICE OF COMAL COUNTY ENGINEER

November 13, 2014

Ms. Shelley Eklund
Bulverde Hills Properties, LLC
P.O. Box 89
Bulverde, TX 78163

Re: Bulverde Hills Properties, LLC On-Site Sewage Facility Suitability Letter, Saddleridge Unit 1, Block 1, Lot 103 within Comal County, Texas

Dear Ms. Eklund:

In accordance with TAC §213.24(8)(B), Comal County has found that the entire referenced site is suitable for the use of private sewage facilities and will meet the requirements for on-site sewage facilities as specified in TAC §285.

If you have any questions or need additional information, please do not hesitate to contact our office.

Sincerely,

Robert Boyd, P.E.
Comal County Assistant Engineer

cc: Scott Haag, Comal County Commissioner, Precinct No. 2

ATTACHMENT J

(BMPs for Up-gradient Storm Water)

The site will be graded such that the up-gradient Stormwater will flow around the site.

ATTACHMENT K

(BMPs for On-Site Stormwater)

The BMP measures which will be used to prevent pollution of stormwater that originates on-site will be permeable concrete for the parking lot and sidewalks and rainwater harvesting from the rooftops. The rainwater from the rooftops will be collected via gutters and contained in a 15,000 gallon tank. The tank will be discharged through an irrigation system.

ATTACHMENT M

(Construction Plans and Design Calculations)

Permeable Concrete	=	0.7798 Acres (Parking Lot and Sidewalk)
Curb	=	0.0184 Acres
Roof Top	=	15,300 S.F.

Average Annual Precipitation = 33 Inches

Required TSS Removal:

Lm = (0.8*.226)*((0.0184*33*.9*170) – (0.0184*33*.03*80)) = 16.53 Lbs

TSS Load Removed By BMPs:

Lr = 1.0*33*(0.7798*34.6 – 0.0184*0.54) = 890 Lbs

Fraction of Runoff to be Treated:

F = 16.53/890 = .01857

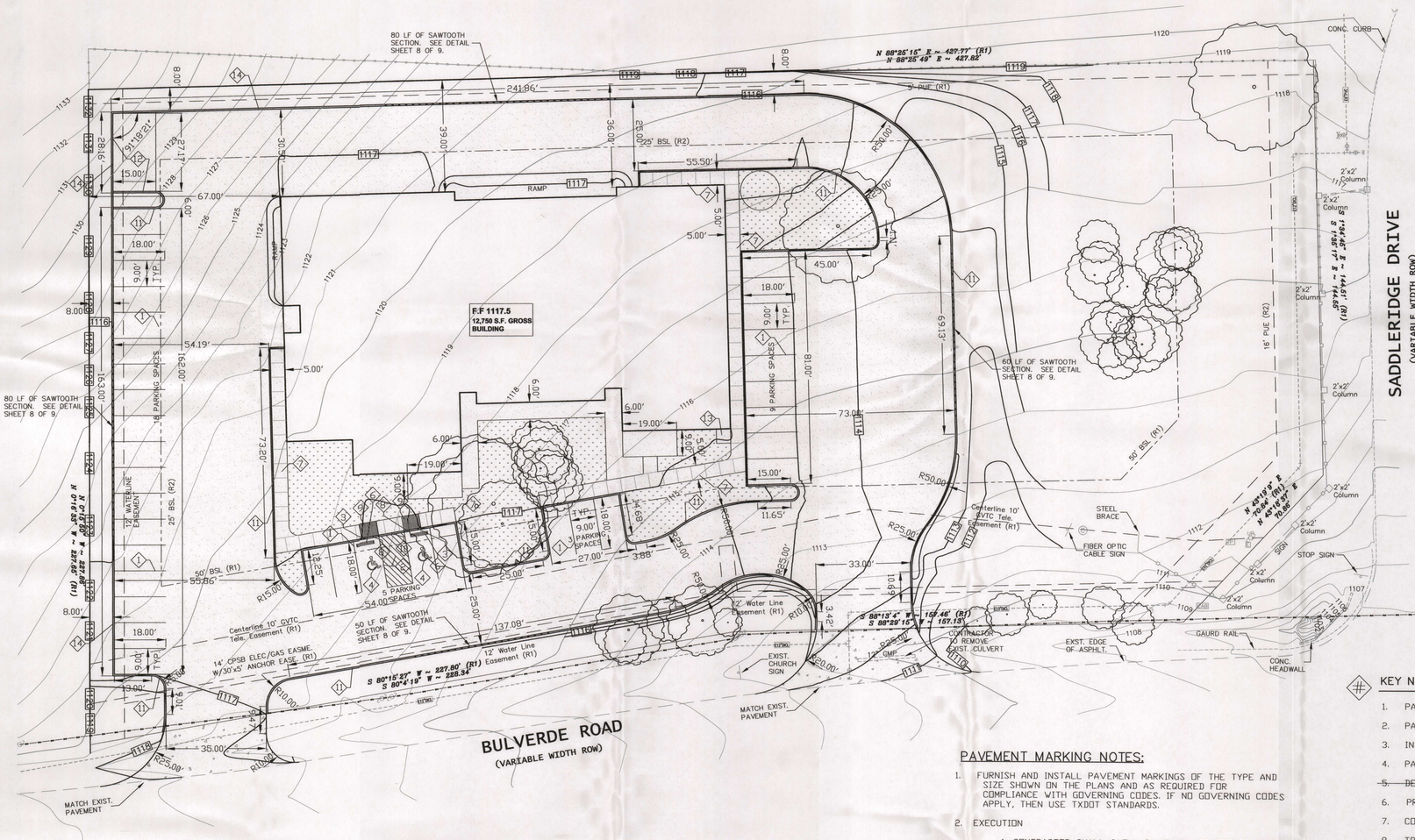
From Table 3-5, Rainfall Depth = 0 inches

Rainwater Harvesting Volume:

V = 15300*1.5/12 = 1,912.5 Ft^3 = ± 14,306.0 Gal.

Use a 15,000 gal Tank with pumps discharging at 16 gpm

Time to discharge Tank = (15000/16)/(60*24) = 0.65 days



GRAPHIC SCALE

40 0 10 20 40

(IN FEET)
1 inch = 20 ft.

LEGEND:

- 8" PVC — EXISTING WATER LINE
- 12" DICL — EXISTING WATER LINE
- EXISTING FIRE HYDRANT
- EXISTING POWER POLE
- CONCRETE
- POROUS (PERMEABLE) CONCRETE
- GRASS

KEY NOTE LIST:

1. PAINT 4" WIDE PARKING SPACE STRIPE. (TYP.).
2. PAINT 4" WIDE DIAGONAL STRIPING @ 2' ON CENTERS WITH BORDER STRIPE.
3. INSTALL HANDICAP SIGN. SEE DETAIL SHEET 8 OF 9
4. PAINTED PARKING SPACE HANDICAP SYMBOL. SEE DETAIL SHEET 8 OF 9.
5. ~~DETECTABLE WARNING AREA. SEE DETAIL SHEET 4 OF 5~~
6. PROPOSED WHEELSTOPES. SEE DETAIL SHEET 8 OF 9.
7. CONCRETE SIDEWALK. SEE DETAIL SHEET 8 OF 9
8. TRANSITION TO LAYDOWN CURB.
9. PROPOSED T.A.S. COMPLIANT CURB RAMPS SEE DETAIL SHEET 8 OF 9
10. LAYDOWN CURB SEE DETAIL SHEET 8 OF 9
11. 6" CONCRETE CURB SEE DETAIL SHEET 8 OF 9
12. DUMPSTER PAD SEE DETAIL SHEET 8 OF 9
13. 5' X 5' CONCRETE PAD WITH ONE (1) BIKE HOOP RACK. CONTRACTOR TO USE HOOP RACK MANIFACTURED BY DERO BIKE RACKS SEE DETAIL SHEET 8 OF 9 OR APPROVED EQUAL.
14. CONCRETE RETAININGWALL - PURVIOUS CONCRETE PAVEMENT COMBINATION TYPE. SEE DETAIL SHEET 8 OF 9

PAVEMENT MARKING NOTES:

1. FURNISH AND INSTALL PAVEMENT MARKINGS OF THE TYPE AND SIZE SHOWN ON THE PLANS AND AS REQUIRED FOR COMPLIANCE WITH GOVERNING CODES. IF NO GOVERNING CODES APPLY, THEN USE TXDOT STANDARDS.
2. EXECUTION
   - A. CONTRACTOR SHALL CLEAN PAVEMENT OF GREASE, DIRT, OIL, SAND, GRAVEL OR OTHER FOREIGN MATERISLS PRIOR TO APPLYING MARKINGS AS RECOMMENDED BY PAINT MANUFACTURER.
   - B. PAVEMENT MARKINGS SHALL BE APPLIED BY MACHINE AT A RATE OF ONE (1) GALLON/100 SQUARE FEET.
   - C. PAVEMENT MARKINGS SHALL NOT BE APPLIED DURING PERIODS OF EXCESS HUMIDITY OR PAVEMENT TERMERATURES BELOW 50 DEGREES F.
   - D. MINIMUM LINE WIDTH IS 4 INCHES. PAVEMENT MARKINGS MUST COMPLY WITH LOCAL FIRE STARNDARDS AND CURRENT ACCESSIBILITY CODE.
   - E. A MINIMUM OF TWO COATS SHALL BE REQUIRED UNLESS REJECTED BY OWNER IN WRITING. WAIT 30 DAYS AFTER PAVEMENT INSTALLATION BEFORE APPLYING THE SECOND COAT OF PAVEMENT MARKINGS.
   - F. CLOSE AREAS TO TRAFFIC FOR DURATION OF DRYING TIME, WHICH SHALL BE NO LESS THAN THE MINIMUM RECOMMEDED BY THE PAINT MANUFACTURER.
3. TRAFFIC PAINT SHALL BE SHERWIN WILLIAMS PRO-MAR TRAFFIC PAINT OR APPROVED EQUAL - COLOR AS SPECIFIED ON PLANS.

NOTES:

1. ALL RADIUS 3' UNLESS OTHERWISE NOTED.

!!! CALL BEFORE YOU DIG !!!

CONTRACTOR TO LOCATE EXISTING UTILITIES PRIOR TO WORK. ANY CONFLICT WITH EXISTING UTILITIES SHALL BE REMEDIED BETWEEN SAID CONLICTING UTILITY AND CONTRACTOR. ENGINEER SHALL BE NOTIFIED IN WRITTING OF ANY CONLICTS IMMEDIATELY UPON DISCOVERY OF CONFLICT (LETTER, FAX, EMAIL).

TEXAS ON CALL PARTICIPANTS REQUESTS 48 HOURS NOTICE BEFORE YOU DIG, DRILL, OR BLAST - STOP AND CALL

TEXAS ON CALL SYSTEM
(800)245-4545

TORRES ENGINEERING P.C.
TBPE FIRM # F-13692
5503 GRISSOM RD. STE. 101 (210) 680-0808
SAN ANTONIO, TEXAS 78238

DATE: OCT. 14, 2014
DESIGNED BY: X.A.T.
DRAWN BY: J.D.C.
CHECKED BY: X.A.T.
SCALE: 1" = 20'
FILE NAME:

STATE OF TEXAS — XAVIER A. TORRES — 93653 — LICENSED PROFESSIONAL ENGINEER — 10/14/14

Xavier Torres

NO.	DATE	DESCRIPTION	BY
REVISIONS			

SITE PLAN AND DIMENSIONAL CONTROL FOR BULVERDE RETAIL CENTER
2925 BULVERDE RD
BULVERDE, TEXAS

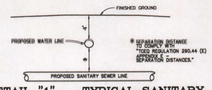
SITE

SHEET 1 OF 9

NOTES

1. Actual location and depths of existing utilities must be verified by the contractor prior to construction and contractor will be responsible for protection of same during construction.

WATER LINE DIA.	COVER (FT.)
6"	5.5
8"	5.7
12"	6.1
16"	7.4



DETAIL "1" – TYPICAL SANITARY SEWER/WATER CROSSING DETAIL

NOT TO SCALE

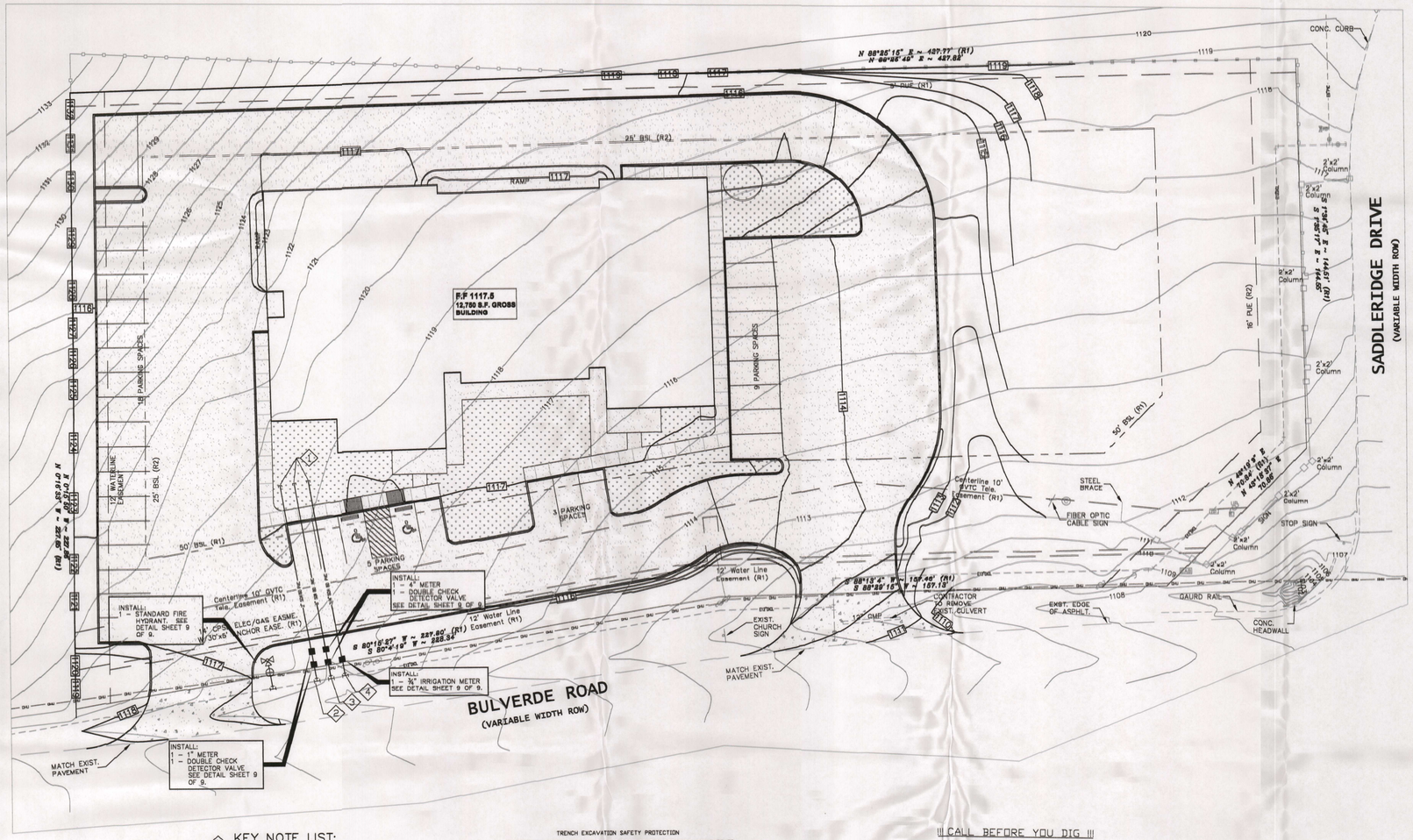
GRAPHIC SCALE

20 0 10 20 40

(IN FEET)
1 inch = 20 ft.

LEGEND:

- 8" SS — EXISTING SEWER LINE
- 8" PVC — PROPOSED WATER LINE
- 16" AC — EXISTING WATER LINE
- 8" SS — PROPOSED SANITARY SEWER
- EXISTING FIRE HYDRANT
- PROPOSED VALVE w/box
- EXISTING VALVE w/box
- EXISTING POWER POLE
- CONCRETE
- POROUS (PERMEABLE) CONCRETE
- GRASS



KEY NOTE LIST:

1. SEE PLUMBING PLANS FOR CONTINUATION.
2. 1" DOMESTIC SERVICE. 12" x 1" TAPPING SLEEVE. CONTRACTOR TO VERIFY LINE SIZE WITH M.E.P. PRIOR TO INSTALLATION.
3. 4" FIRE SERVICE. 12" x 4" TAPPING SLEEVE. CONTRACTOR TO VERIFY LINE SIZE WITH M.E.P. PRIOR TO INSTALLATION.
4. ¾" IRRIGATION SERVICE 12" x ¾" TAPPING SADDLE CONTRACTOR TO VERIFY LINE SIZE WITH LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STUNCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEM(S), PROGRAMS, AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE PROGRAMS, AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION SYSTEM(S) THAT MEET OR EXCEED MINIMUM CURRENT O.S.H.A STANDARDS FOR PROTECTIVE EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OF SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH CURRENT O.S.H.A. STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

!!! CALL BEFORE YOU DIG !!!

CONTRACTOR TO LOCATE ALL EXISTING UTILITIES PRIOR TO WORK. ANY CONFLICT WITH EXISTING UTILITIES SHALL BE REMEDIED BETWEEN SAID CONFLICTING UTILITY AND CONTRACTOR. ENGINEER SHALL BE NOTIFIED IN WRITTING OF ANY CONLICTS IMMEDIATELY UPON DISCOVERY OF CONFLICT (LETTER, FAX, EMAIL).

TEXAS ONE CALL PARTICIPANTS REQUESTS 48 HOURS NOTICE BEFORE YOU U. DRILL, OR BLAST – STOP AND CALL

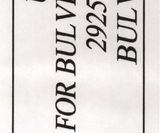
TEXAS ONE CALL SYSTEM
800-245-4545
www.texasonecall.com

NOTES

1. Actual location and depths of existing utilities must be verified by the contractor prior to construction and contractor will be responsible for protection of some during construction.

TORRES ENGINEERING P.C.
TBPE FIRM # P-13802
5505 GRISSOM RD, STE. 101 (210) 680-0808
SAN ANTONIO, TEXAS 78238

DATE: OCT. 14, 2014
DESIGNED BY: X.A.T.
DRAWN BY: J.D.C.
CHECKED BY: X.A.T.
SCALE: 1" = 20'
FILE NAME:



Javier Torres

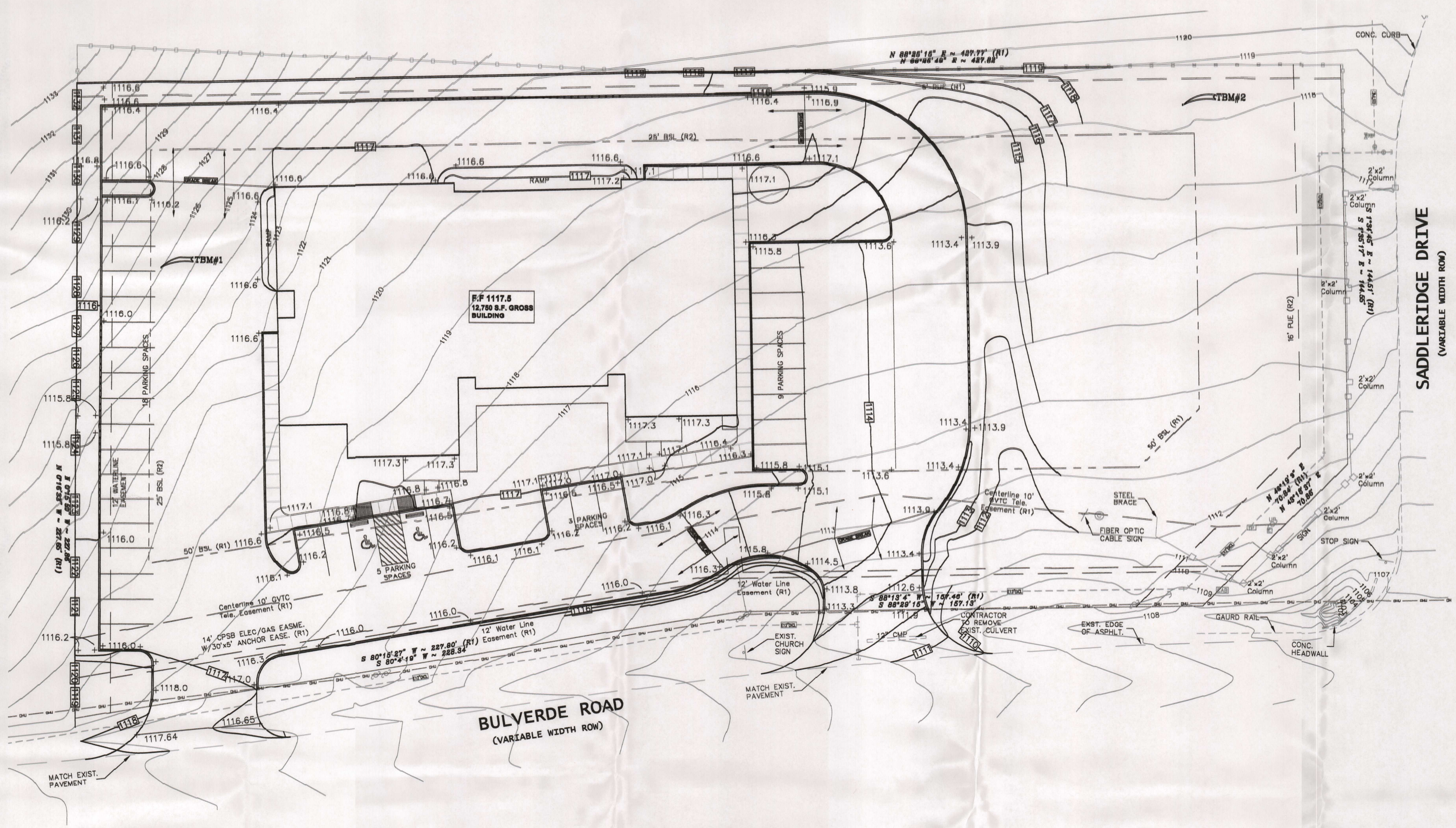
REVISIONS

NO	DATE	DESCRIPTION	BY

UTILITY PLAN
FOR BULVERDE RETAIL CENTER
2925 BULVERDE RD
BULVERDE, TEXAS

UTILITY

SHEET 2 OF 9



GRAPHIC SCALE

40 0 10 20 40

(IN FEET)
1 inch = 20 ft.

LEGEND

+ 20.4	FINISHED ELEVATION
+ E20.4	EXISTING ELEVATION
—832—	EXISTING CONTOUR
—[832]—	FINISHED CONTOUR

!!! CALL BEFORE YOU DIG !!!

CONTRACTOR TO LOCATE EXISTING UTILITIES PRIOR TO WORK. ANY CONFLICT WITH EXISTING UTILITIES SHALL BE REMEDIED BETWEEN SAID CONLICTING UTILITY AND CONTRACTOR. ENGINEER SHALL BE NOTIFIED IN WRITTING OF ANY CONLICTS IMMEDIATELY UPON DISCOVERY OF CONFLICT (LETTER, FAX, EMAIL).

TEXAS ON CALL PARTICIPANTS REQUESTS 48 HOURS NOTICE BEFORE YOU DIG, DRILL, OR BLAST - STOP AND CALL

TEXAS ON CALL SYSTEM
(800)245-4545

BENCHMARK

TBM#1	SET RB4 TBM #1 ELEVATION 1125.99
TBM#2	SET RB4 TBM #2 ELEVATION 1118.25

TORRES ENGINEERING P.C.

TBPE FIRM # F-13692

5563 GRISSOM RD, STE. 101 (210) 680-0808
SAN ANTONIO, TEXAS 78238

DATE: AUG. 15, 2014
DESIGNED BY:
DRAWN BY:
CHECKED BY:
SCALE: 1" 20'
FILE NAME:

STATE OF TEXAS
XAVER A. TORRES
99853
LICENSED PROFESSIONAL ENGINEER
08/15/14

Xaver Torres

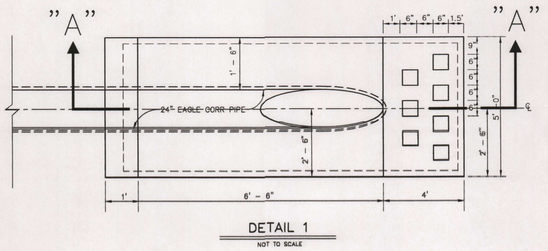
REVISIONS

NO.	DATE	DESCRIPTION	BY

GRADING PLAN
FOR BULVERDE RETAIL CENTER
2925 BULVERDE RD
BULVERDE, TEXAS

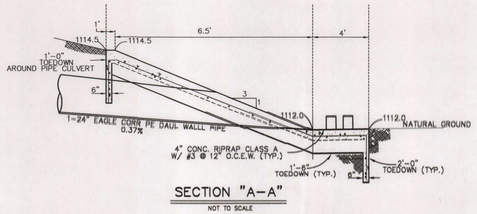
GRADING

SHEET 4 OF 9



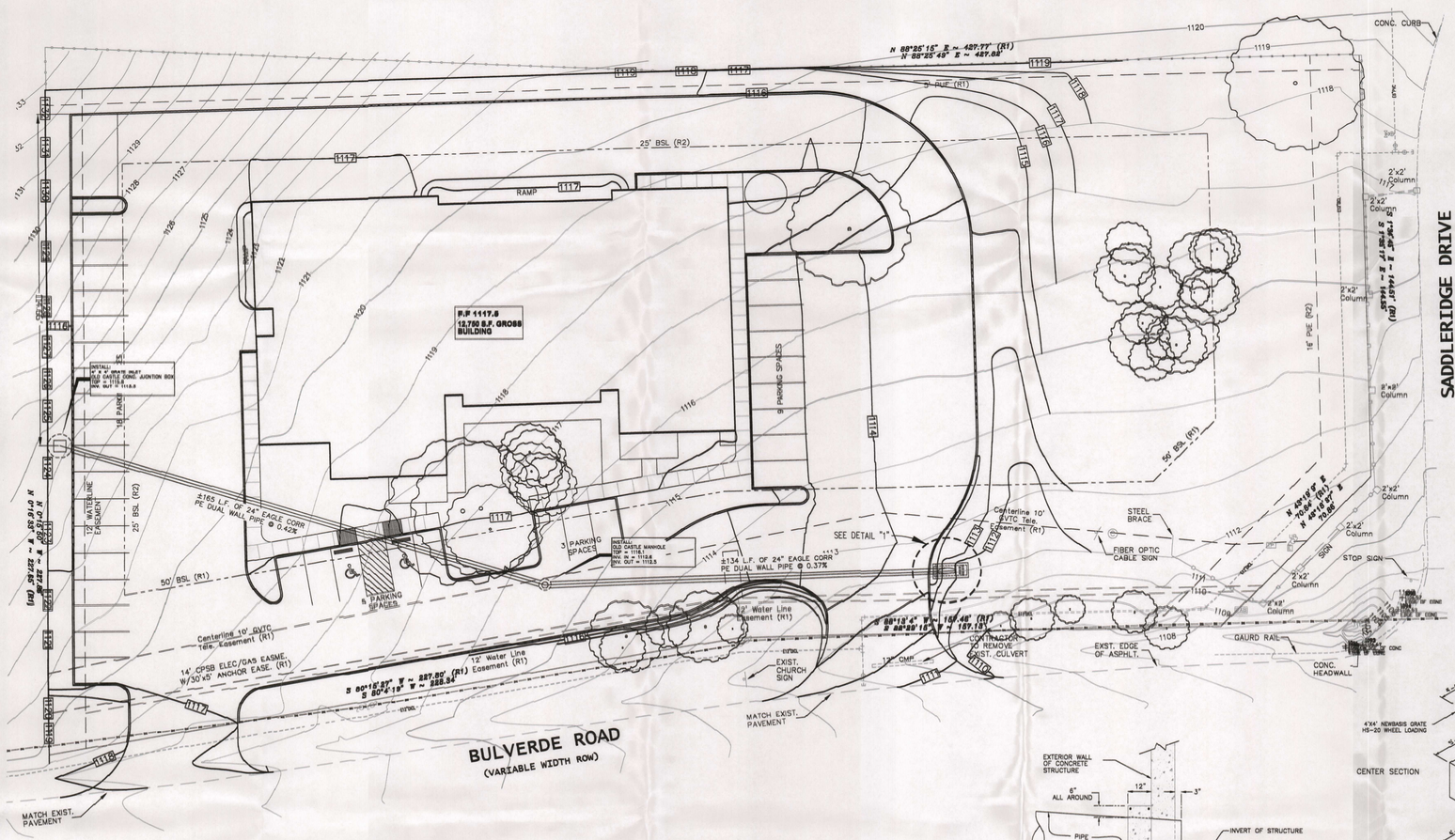
DETAIL 1

NOT TO SCALE



SECTION "A-A"

NOT TO SCALE



GRAPHIC SCALE

(IN FEET)
1 inch = 20 ft.

!!! CALL BEFORE YOU DIG !!!

CONTRACTOR TO LOCATE EXISTING UTILITIES PRIOR TO WORK. ANY CONFLICT WITH EXISTING UTILITIES SHALL BE REMEDIED BETWEEN SAID CONLICTING UTILITY AND CONTRACTOR. ENGINEER SHALL BE NOTIFIED IN WRITTING OF ANY CONLICTS IMMEDIATELY UPON DISCOVERY OF CONFLICT (LETTER, FAX, EMAIL).

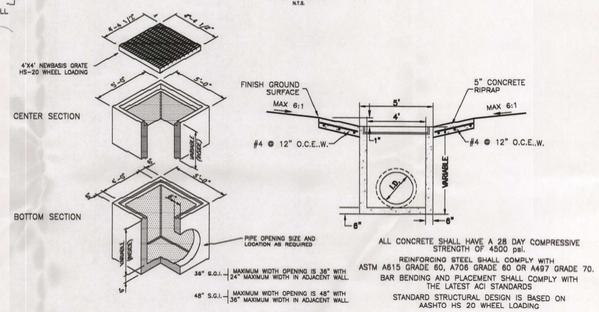
TEXAS ON CALL PARTICIPANTS REQUESTS 48 HOURS NOTICE BEFORE YOU DIG, DRILL, OR BLAST - STOP AND CALL

TEXAS ON CALL SYSTEM
(800)245-4545

CONCRETE COLLAR DETAIL

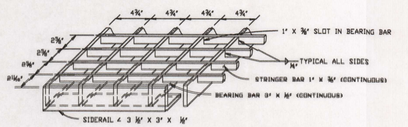
NOT TO SCALE

NOTE: UNLESS OTHERWISE NOTED, ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI IN 28 DAYS.



4' x 4' JUNCTION BOX - GRATE INLET DETAIL

(NEWBASIS OR APPROVED EQUAL)
N.T.S.



GRATE CORE
N.T.S.

TORRES ENGINEERING P.C.
TBPE FIRM # F-12502
5565 GRISSOM RD, STE. 101 (210) 680-0808
SAN ANTONIO, TEXAS 78238

DATE: OCT. 14, 2014
DESIGNED BY: X.A.T.
DRAWN BY: J.D.C.
CHECKED BY: X.A.T.
SCALE: 1" 20'
FILE NAME:

XAVIER A. TORRES 98803 LICENSED PROFESSIONAL ENGINEER 10/31/14

NO.	DATE	REVISIONS	BY

STORM SEWER PLAN
FOR BULVERDE RETAIL CENTER
2925 BULVERDE RD
BULVERDE, TEXAS

STORM SEWER

SHEET 5 OF 9

PAVEMENT MARKING NOTES:

1. FURNISH AND INSTALL PAVEMENT MARKINGS OF THE TYPE AND SIZE SHOWN ON THE PLANS AND AS REQUIRED FOR COMPLIANCE WITH GOVERNING CODES. IF NO GOVERNING CODES APPLY, THEN USE TXDOT STANDARDS.

2. EXECUTION

   A. CONTRACTOR SHALL CLEAN PAVEMENT OF GREASE, DIRT, OIL, SAND, GRAVEL OR OTHER FOREIGN MATERISLS PRIOR TO APPLYING MARKINGS AS RECOMMENDED BY PAINT MANUFACTURER.

   B. PAVEMENT MARKINGS SHALL BE APPLIED BY MACHINE AT A RATE OF ONE (1) GALLON/100 SQUARE FEET.

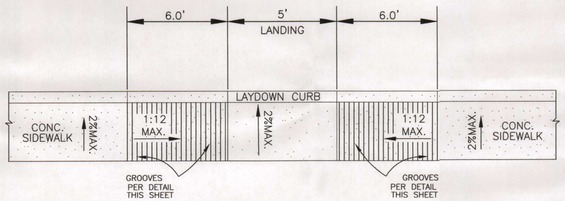
   C. PAVEMENT MARKINGS SHALL NOT BE APPLIED DURING PERIODS OF EXCESS HUMIDITY OR PAVEMENT TERMERATURES BELOW 50 DEGREES F.

   D. MINIMUM LINE WIDTH IS 4 INCHES. PAVEMENT MARKINGS MUST COMPLY WITH LOCAL FIRE STARNDARDS AND CURRENT ACCESSIBILITY CODE.

   E. A MINIMUM OF TWO COATS SHALL BE REQUIRED UNLESS REJECTED BY OWNER IN WRITING. WAIT 30 DAYS AFTER PAVEMENT INSTALLATION BEFORE APPLYING THE SECOND COAT OF PAVEMENT MARKINGS.

   F. CLOSE AREAS TO TRAFFIC FOR DURATION OF DRYING TIME, WHICH SHALL BE NO LESS THAN THE MINIMUM RECOMMEDED BY THE PAINT MANUFACTURER.

3. TRAFFIC PAINT SHALL BE SHERWIN WILLIAMS PRO-MAR TRAFFIC PAINT OR APPROVED EQUAL - COLOR AS SPECIFIED ON PLANS.



PARALLEL CURB RAMP DETAIL

NOT TO SCALE

1. FULL WIDTH AND DEPTH OF CONCRETE CURB RAMP SURFACES (EXCLUDES FLARES) SHALL BEBROOM FINISHED WITH GROVES PLACED PERPENDICULAR TO THE PATH OF TRAVEL AS PER THE FOLLOWING DETAIL:

CONCRETE CURB RAMP GROOVE

NOT TO SCALE

NOTES:
THE USE OF GROOVES, IF ARRANGED SO THAT WATER WILL NOT ACCUMULATE, IS ACCEPTABLE IN TEXAS PROVIDED THE GROOVED SURFACE IS DETECTABLE UNDERFOOT PER TDLR TECHNICAL MEMORANDUM No. TM 08-01. IF THE AUTHORITY HAVING JURISDICTION (I.E. CITY, COUNTY, TxDOT) REQUIRES THE USE OF TRUNCATED DOMES INSTEAD OF GROOVES, CAST IN PLACE DETECTABLE WARNING TILES FROM AMOR-TILE (OR EQUIVALENT) SHALL BE USED ON THE FULL WIDTH AND DEPTH OF THE RAMP SURFACE. PRODUCT INFORMATION/SPECS MAY BE OBTAINED FROM:

AMOR-TILE ENGINEERED PLASTICS, INC.
300 INTERNATIONAL DRIVE, STE 100
WILLIAMSVILLE, NY 14221
(800) 682-2525 / FAX: (800) 769-4463
WWW.AMOR-TILE.COM

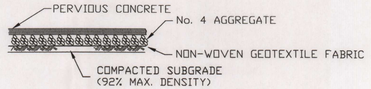
2. FULL WIDTH AND DEPTH OF CURB RAMP SURFACES SHALL HAVE A LIGHT REFLECTIVE VALUE THAT SIGNIFICANTLY CONTRASTS WITH THAT OF THE ADJACENT PEDESTRIAN ROUTES BY USING OF THE FOLLOWING METHODS (GROOVED RAMP SURFACES ONLY):
   A) INTERGRAL COLORED CONCRETE MIX
   B) DRY SHAKER COLOR PLACED AND TROWELED INTO FRESHLY POURED CONCRETE PER MANUFACTURER'S SPECIFICATIONS
   C)CONCRETE STAIN APPLIED PER MANUFACTURE'S SPECIFICATIONS
   NOTE 1: COLOR TO BE SELECTED BY OWNER OR DESIGN PROFESSIONAL.
   NOTE 2: COLOR ON FLARED SURFACES ARE OPTIONAL (NOT REQUIRED)
   NOTE 3: ARMOR-TILE DETECTABLE WARNING SURFACES ALREADY COME IN A VARIETY OF CONTRASTING COLORS TO BE SELECTED BY OWNER OR DESIGN PROFESSIONAL.

3. RAMP SURFACE DIMENSIONS SHOWN CORRESPOND ONLY TO STANDARD 6 INCH CURB HEIGHTS WITH SAID RAMP LOCATED ENTIRELY WITHIN AN AREA THAT IS FLAT IN ALL DIRECTIONS -- 1:12 MAX SLOPE SHALL GOVERN FOR ALL CURB RAMP SURFACES.

4. CURB RAMP CONSTRUCTION TO BE CONSTRUCTED AS PER TYPICAL CONCRETE SIDEWALK SECTION SHOWN ON THIS SHEET.

RIGID PAVEMENT DESIGN

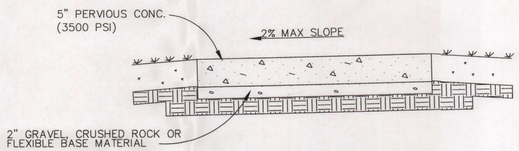
6.0" PERVIOUS CONCRETE (LIGHT DUTY)
7.0" PERVIOUS CONCRETE (HEAVY DUTY)
8.0" CLEAN, DURABLE, ASTM C-33 No. 4 AGGREGATE
6" COMPACTED SUBGRADE



PURVIOUS CONCRETE PAVEMENT DETAIL

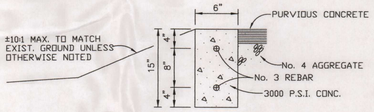
NOT TO SCALE

NOTE:
1. LIGHT DUTY PAVEMENT TO BE USED FOR PARKING STAHLS.
2. HEAVY DUTY PAVEMENT TO BE USED FOR DRIVE ILSES.
3. GEOTEXTILE FABRIC TO COMPLY WITH THE MINIMUM. SPECIFICATIONS IN TABLE 3-7 OF THE TCEQ RG-348.
4. CONCRETE SHOULD HAVE A MINIMUM COMPRESIVE STRENGHT OF 3,500 PSI.



CONCRETE SIDEWALK SECTION

NOT TO SCALE

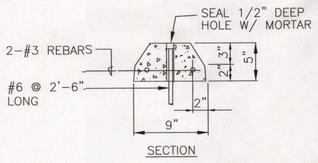


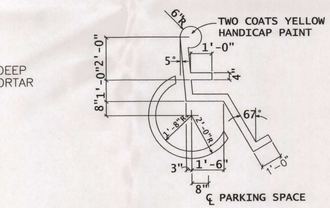
LAYDOWN CURB DETAIL

NOT TO SCALE

PRECAST CONCRETE WHEEL STOP

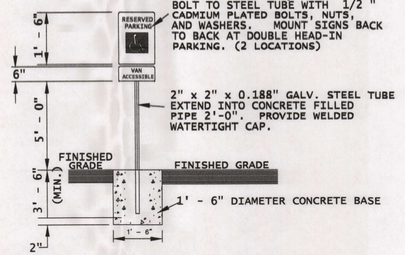
NOT TO SCALE





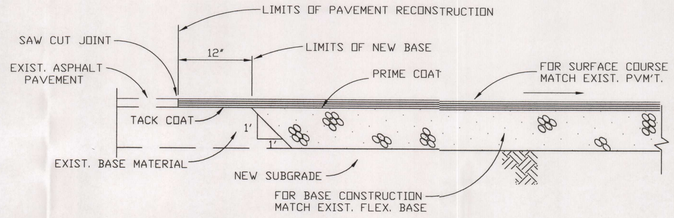
ACCESSIBILITY HANDICAP SYMBOL

NOT TO SCALE

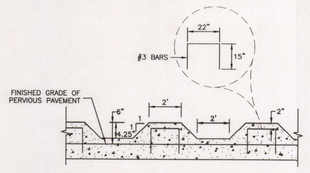


HANDICAP SIGN DETAIL

NOT TO SCALE

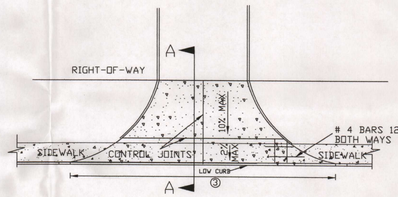


PAVEMENT JUNCTION DETAIL



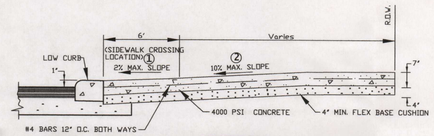
SAWTOOTH SECTION

NOT TO SCALE



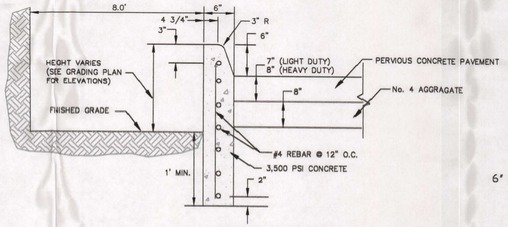
CONCRETE DRIVEWAY DETAIL

NOT TO SCALE

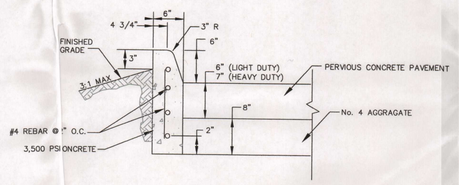


SECTION A-A

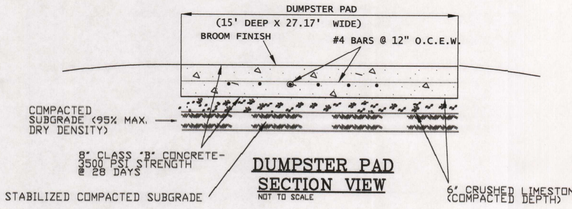
NOTES:
1. 2% MAXIMUM SLOPE LOCATION ON DRIVEWAY INLINE WITH ADJOINING SIDEWALKS. SEE DIMENSIONAL CONTROL PLAN FOR SIDEWALK LOCATION.
2. DRIVEWAY % SLOPE AND SLOPE DIRECTION MAY VARY. SEE GRADING PLAN FOR % SLOPE AND DIRECTION.
3. SAWCUT STRAIGHT LINE AT EDGE OF EXISTING PAVEMENT FOR DRIVEWAY CONNECTION



CONCRETE RETAINING WALL – CONCRETE PAVEMENT COMBINATION TYPE

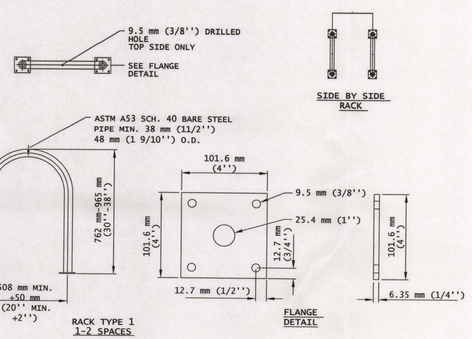


CONCRE'E CURB ON PERVIOUS PAVEMENT



DUMPSTER PAD SECTION VIEW

NOT TO SCALE



NOTE:
1. ALL BICYCLE PARKING PROVIDED SHOULD BE SET IN CONCRETE OR FLANGE MOUNTED ON CONCRETE, AND LOCATED A MIN. OF 24" FROM PARALLEL WALL, AND 30" FROM A PERPENDICULAR WALL AS MEASURED TO THE CLOSEST BICYCLE RACK.

BICYCLE RACK DETAIL

NOT TO SCALE

TORRES ENGINEERING P.C.
TBPE FIRM # F-13692
5503 GRISSOM RD, STE. 101 (210) 680-0808
SAN ANTONIO, TEXAS 78238

DATE: OCT. 14, 2014
DESIGNED BY:
DRAWN BY:
CHECKED BY:
SCALE: 1" 20'
FILE NAME:

REVISIONS

NO.	DATE	DESCRIPTION	BY
			XAT
			XAT

STATE OF TEXAS — XAVIER A. TORRES — 93953 — LICENSED PROFESSIONAL ENGINEER — 10/14/14

DETAIL SHEET
FOR BULVERDE RETAIL CENTER
2925 BULVERDE RD
BULVERDE, TEXAS

DETAIL SHEET

SHEET 8 OF 9

Sprinkler Heads & Valves Data:

Pop-up Spray Heads: Hunter Pro-S Series Pop-up Spray
(4" for turf, 12" for beds and shrubs)(acceptable alternates: Toro 570, Rainbird 1800, Weathermatic LX)
(all MPR)

ARC	Target PSI	15' nozzle	12' nozzle	10' nozzle	8' nozzle	5' nozzle	15' nozzle
360°	40 psi	4.0 gpm ( )	2.35 gpm (12)	1.6 gpm (10)	1.1 gpm (8)	0.5 gpm (5)	5.5 gpm (17)
270°	40 psi	3.0 gpm ( )	1.7 gpm (12)	1.2 gpm (10)	0.9 gpm (8)	0.35 gpm (5)	4.1 gpm (17)
240°	40 psi	2.7 gpm ( )	1.65 gpm (12)	1.1 gpm (10)	0.8 gpm (8)	0.3 gpm (5)	3.7 gpm (17)
180°	40 psi	2.0 gpm ( )	1.3 gpm (12)	1.0 gpm (10)	0.6 gpm (8)	0.25 gpm (5)	2.8 gpm (17)
120°	40 psi	1.3 gpm ( )	0.9 gpm (12)	0.7 gpm (10)	0.4 gpm (8)	0.2 gpm (5)	1.8 gpm (17)
90°	40 psi	1.0 gpm ( )	0.6 gpm (12)	0.3 gpm (10)	0.2 gpm (8)	0.1 gpm (5)	1.4 gpm (17)
end strip	40 psi	0.5 gpm (es)					
center strip	40 psi	1.0 gpm (cs)					
wide strip	40 psi	1.4 gpm (ws)					

( ) - designates marking on plan

Bubblers: Hunter PCN nozzle in PRO-S body
(acceptable alternates: Toro FB nozzles in 570 body, Rainbird 1400 nozzle in 1800 body, Weathermatic 102 nozzle in LX body)
360° 40 psi 1.0 gpm
Rotors: 1/20 – 3.0 nozzle – 3.0 gpm at 40 PSI
3000 MP Rotators: 90° @ 40 PSI – 0.9 gpm; 180° @ 40 PSI – 1.8 gpm

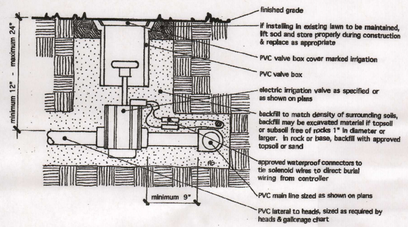
Electric Valves: Hunter PGV Series

0.1 gpm to 17.5 gpm	1" valve
17.6 gpm to 40.0 gpm	1 1/2" valve
40.1 gpm to 60.0 gpm	2" valve
60.1 gpm +	3" valve

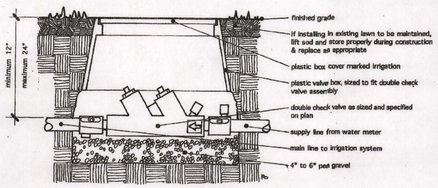
Piping Size Requirements: (based on Class 200)

no 1/2" laterals allowed	
0.1 gpm to 6.0 gpm	3/4" PVC
6.1 gpm to 10.0 gpm	1" PVC
10.1 gpm to 20.0 gpm	1 1/4" PVC
20.1 gpm to 30.0 gpm	1 1/2" PVC
30.1 gpm to 50.0 gpm	2" PVC
50.1 gpm to 75.0 gpm	2 1/2" PVC
75.1 gpm +	3" PVC

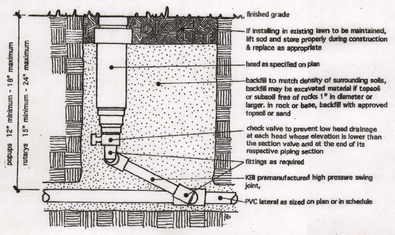
Special Spray Head Performance Note: In areas where normal spray from a pop-up will pass more than 6" beyond the leading edge of a curb, walk, etc., the adjustment screw on the nozzle top shall be adjusted to cut back the spray as required.



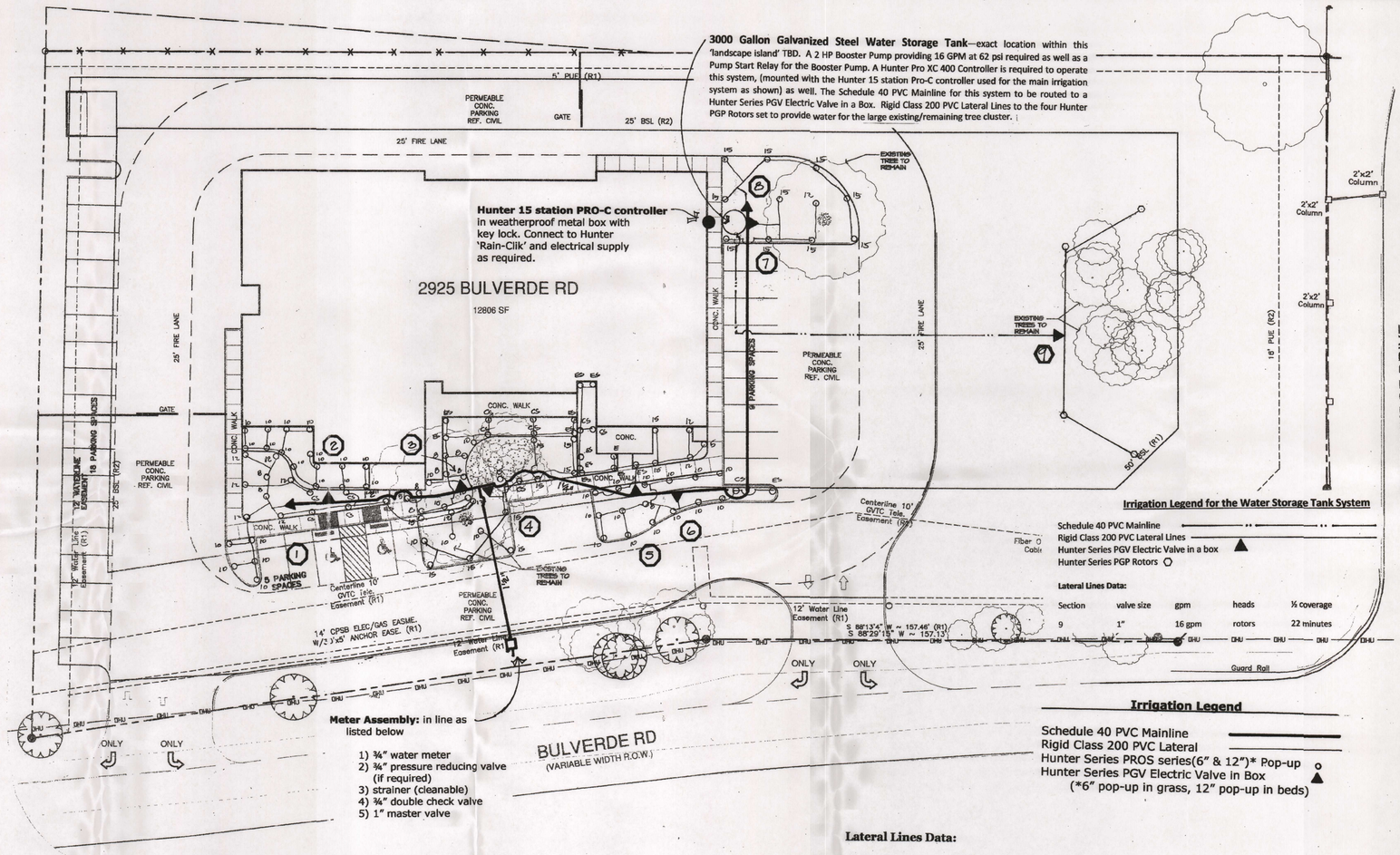
Typical Electric Valve Installation
Not to Scale



Double Check Valve In Box
Not to Scale



Typical Head Installation
(with check valve where required)
Not to Scale



3000 Gallon Galvanized Steel Water Storage Tank—exact location within this 'landscape island' TBD. A 2 HP Booster Pump providing 16 GPM at 62 psi required as well as a Pump Start Relay for the Booster Pump. A Hunter Pro XC 400 Controller is required to operate this system, (mounted with the Hunter 15 station Pro-C controller used for the main irrigation system as shown) as well. The Schedule 40 PVC Mainline for this system to be routed to a Hunter Series PGV Electric Valve in a Box. Rigid Class 200 PVC Lateral Lines to the four Hunter PGP Rotors set to provide water for the large existing/remaining tree cluster.

Irrigation Legend for the Water Storage Tank System

Schedule 40 PVC Mainline
Rigid Class 200 PVC Lateral Lines
Hunter Series PGV Electric Valve in a box
Hunter Series PGP Rotors

Lateral Lines Data:

Section	valve size	gpm	heads	½ coverage
9	1"	16 gpm	rotors	22 minutes

Meter Assembly: in line as listed below

1) ¾" water meter
2) ¾" pressure reducing valve (if required)
3) strainer (cleanable)
4) ¾" double check valve
5) 1" master valve

Irrigation Legend

Schedule 40 PVC Mainline
Rigid Class 200 PVC Lateral
Hunter Series PROS series(6" & 12")* Pop-up
Hunter Series PGV Electric Valve in Box
(*6" pop-up in grass, 12" pop-up in beds)

Lateral Lines Data:

section	valve size	gpm	heads	1/2" coverage
1	1"	15.0 gpm	sprays	22 minutes
2	1"	11.6 gpm	sprays	22 minutes
3	1"	12.2 gpm	sprays	22 minutes
4	1"	15.6 gpm	sprays	22 minutes
5	1"	9.3 gpm	sprays	22 minutes
6	1"	14.4 gpm	sprays	22 minutes
7	1"	11.4 gpm	sprays	22 minutes
8	1"	10.0 gpm	sprays	22 minutes

Irrigation Installation Notes:

1. The contractor shall install an **electric controller** as identified on the plan. The controller shall be mounted between 42" and 54" above finished grade, in a waterproof box with keylock (if exterior mounted), and shall be direct wired to all valves, master valve, and electrical supply as required. Unless otherwise indicated on the plan, the controller shall be solid state, controllable between 1 minute and 60 minutes per station, and shall have an adequate number of stations to operate all lateral lines and the master valve. The controller shall be connected to the rainstat and any other supplement controls.
2. The controller shall be connected to a **rainstat** over the system which will skip the watering cycle whenever adequate rain has occurred. The rainstat shall be exterior mounted as near as possible to the controller, and in a location where overhead obstructions such as trees, building overhangs, signs, etc. will not affect performance. Typical mounting will be at the eave edge.
3. All **water pipe** shall be rigid PVC class 200 or better as noted on the plans. All **sleeves** shall be Schedule 40 rigid PVC and a minimum of 4".
4. Except where required as a component in the installation of a riser, **no ½" pipe** will be allowed.
5. All pipe shall have a **minimum cover** of ten inches (10").
6. All irrigation parts/components will be **new equipment** at the time of installation and will conform to the latest specifications and catalog of the respective manufacturer.
7. Each lateral shall have its lowest head in elevation equipped with a **low head drainage check valve,** either externally mounted on the sprinkler or internal (SAM type).
8. **Backfill** material will be free of rocks greater than 1" in diameter, trash, and other debris. Backfilling will be completed in a manner to compensate for soil settling, and the top 4" of backfill in landscape areas shall be approved topsoil or soil mix to match final landscape plan requirements. Where lines are installed in existing lawns, sod cover shall be neatly removed prior to ditching, stockpiled in an appropriate manner, and replaced after backfilling and compaction is complete.
9. The contractor shall be responsible for **removing** all debris, spoil, etc. and for properly **disposing of** off site.
10. The irrigation contractor shall be responsible for **securing any and all construction permits** (if not secured by a general contractor) and shall be responsible for securing all inspections and approvals by appropriate governing bodies.
11. All connections to domestic water systems **(water meters)** shall be made by appropriately licensed and certified individuals. A Licensed Irrigator shall oversee all installation. At the completion of installation, the same Licensed Irrigator who oversaw installation shall be responsible for any certifications by governmental agencies or other appropriate groups.
12. After completion, the system shall be subjected to a **72 hour pressure test.** All leaks and other problems shall be corrected immediately.
13. All sprinkler heads shall be installed a **minimum of 4" away** from all curbs, walks, and other appurtenances.
14. All trenching/digging within the **Root Protection Zone (RPZ)** of existing trees as identified by governmental agencies and counted as trees to be saved shall be completed by hand digging. No tree roots larger than 1" in diameter shall be cut, and any marred or damaged roots shall be treated with an approved pruning paint.
15. The contractor shall be responsible for verifying the location of all other **underground utilities** and shall protect such utilities from damage, etc.

Sprinkler Irrigation Component Parts List

Sprinkler Heads:
Pop-up Spray Heads select from following – Matched Precipitation Rates (MPR):
Hunter I-BOT Series — Toro 570 Series, MPR nozzles
Weathermatic LX Series, MPR

Bubblers (select from following)
Hunter PCN nozzle in PRO-S body — Toro FB nozzles in 570 body
Weathermatic 102 nozzle in LX body

Small Radial Rotary Heads:
Hunter Series I-10/I-20 rotary

Check Valve or Valve In Head (must install a minimum of one per each lateral):
select from the following:
Irritrol BLCV Check Valve — Rainbird 1800-SAM-PRS
Toro 570 Series, Check-o-matic — Hunter I Spray – CV

Electric Valves, except Hunter Valves: select from following:
Hunter PGV valves with ICD decoders with surge arrestors

Hunter Valves: select from following:
Irritrol 700 Series — Hunter ICV Series

Double Check Valve Assemblies: select from following:
Cordnoco Series 40-100 for ¾" to 6"
Febco Master Series 850 for ¾" to 6"

Piping (White for normal applications, purple for reclaimed water):
Mains: Schedule 40 PVC for ¾" to 2 ½", Class 200 for 3" and greater, Solvent weld for ¾" to 2 ½", solvent weld or ring-tite for 3" and greater
Laterals: Class 200, solvent weld for ¾" to 2 ½", solvent weld or ring-tite for 3" and greater
Fittings: a working pressure equal to or greater than the required pipe
Solvent: compatible to the pipe used

Swing Joints: select from following:
KBI swing joint — Hunter SJ Series

Wiring: to be Hunter ID wire, model 2 MM (2)(14 AWG) standard decoder cable up to 10,000 ft.
model 3.3 MM (2) long range heavy-duty decoder cable over 10,000 ft.
install grounding poles to wires not to exceed every 300' on center

Wire Nuts and Waterproof Connectors:
Wire nuts to be Type UF and approved for ground mount in ... Jon systems
Waterproof connectors to be by 3M, King,

Valve Boxes: select from following:
For electric valves, in-line valves, etc. — Ametek Economy Turf Box
For double check valve assemblies and other large valves/meters — Ametek Meter Box — DFW Model D-1200 or D-1800

Controllers: as specified on plans — DFW Model D-109

ACACIA ALDC

FAX:210-494-7744
210-863-7744
DOUGLAS E. SMITH
-BS LANDSCAPE ARCHITECTURE
-BS AGRONOMY/PLANT GENETICS
-MS HORTICULTURE
-TEXAS LICENSED IRRIGATOR #6018

Irrigation Plan
SCALE : 1" = 20'-0"

TRUE NORTH PLAN NORTH

Call before you dig!
Call 811

STATE OF TEXAS
PETER B. OLFERS
8709
LICENSED IRRIGATOR
11/19/14

L-1.2
Irrigation Plan

ATTACHMENT N

(Inspection, Maintenance, Repair and Retrofit Plan)

Project Name: Bulverde Retail Center
Address: 2925 Bulverde Rd.
City, State, Zip: Bulverde TX,

It is the responsibility of the owner to comply with the Inspection, Maintenance and Retrofit Plan.

Inspection:

1. Inspect gutter for debris and or leaks.
2. Inspect Tank for debris and or leaks.
3. Inspect irrigation system for leaks.
4. Inspect Irrigation Heads, Buster Pumps, Pump Start Relay and electrical controller to insure they are in proper working order.
5. Inspect Permeable Concrete (Parking Lot and Sidewalk) for Oil spills and or clogging.

Inspections are to be performed every three months and after ever rain event.

Maintenance:

1. Every three months and after every rain event, remove all debris from gutters.
2. After every rain event, remove any debris from rainwater storage tank.
3. Once a year, pressure-wash permeable concrete.
4. Every two years steam vacuum permeable concrete.
5. Steam Vacuum permeable concrete should it become clogged.
6. Steam Vacuum permeable concrete should any hydrocarbon spill occur.

Repair:

1. Repair leaking gutters, irrigation pipe, irrigation heads and tank.
2. Repair Buster Pumps, Pump Start Relay and or Electrical Controller.

Retrofit:

1. Replace permeable concrete and or durable aggregate should hydrocarbon spill occur or if permeable concrete should become clogged if Steam Vacuuming does not remove hydrocarbon or unclog permeable concrete.

Responsible Party: Bulverde Retail Center
Address: 2925 Bulverde Rd., Bulverde TX., 78163
Signature:

Bulverde Retail Center

Inspection, Maintenance, Repair and Retrofit Plan Log

Inspection

Date of Inpsection	Type of Inspection	Signature

Maintanance

Date of Maintanance	Typre of Maintanace	

Repair

Date of Repair	Type of Repair	

Retrofit

Date of Retrofit	Type of Retrofit	

NPDES FORM 3510-9	EPA	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, DC 20460 NOTICE OF INTENT (NOI) FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER AN NPDES GENERAL PERMIT	Form Approved. OMB Nos. 2040-0004

Submission of this Notice of Intent (NOI) constitutes notice that the operator identified in Section II of this form requests authorization to discharge pursuant to the NPDES Construction General Permit (CGP) permit number identified in Section I of this form. Submission of this NOI also constitutes notice that the operator identified in Section II of this form meets the eligibility requirements of Parts 1.1 and 1.2 of the CGP for the project identified in Section III of this form. Permit coverage is required prior to commencement of construction activity until you are eligible to terminate coverage as detailed in Part 8 of the CGP. To obtain authorization, you must submit a complete and accurate NOI form. Discharges are not authorized if your NOI is incomplete or inaccurate or if you were never eligible for permit coverage. Refer to the instructions at the end of this form.

I. Approval to Use Paper NOI Form

Have you been given approval from the Regional Office to use this paper NOI form*? ☐ Yes ☐ NO

If yes, provide the reason you need to use this paper form, the name of the EPA Regional Office staff person who approved your use of this form, and the date of approval:

Reason for using paper form:

Name of EPA staff person:

Date approval obtained:

*** Note: You are required to obtain approval from the applicable Regional Office prior to using this paper NOI form.**

II. Permit Information:

Tracking Number (EPA Use Only) TXR12EX9F

Permit Number: TXR12000F (see Appendix B of the CGP for the list of eligible permit numbers)

III. Operator Information

Name: Bulverde Properties LLC

Phone: 830-237-2679 Fax (Optional):

Email: seklund@ae4cool.com

IRS Employer Identification Number (EIN): 46-3599743

Point of Contact (First Name, Middle Initial, Last Name): Shelly Eklund

Mailing Address:

Street: P.O. Box 89

City: Bulverde State: TX Zip: 78163

NOI Preparer (Complete if NOI was prepared by someone other than the certifier):

Prepared by (First Name, Middle Initial, Last Name): Shelly Eklund

Organization: Bulverde Properties LLC

Phone: (830) 237-2679 Fax (Optional):

E-mail: xtorres@torresengineering.net

IV. Project/Site Information

Project/Site Name: Bulverde Retail Center

Project/Site Address:

Street/Location: 2975 Bulverde Rd

City: Bulverde State: TX Zip: 78163

County or similar government subdivision: Comal

For the project/site for which you are seeking permit coverage, provide the following information:

Latitude/Longitude (Use one of three possible formats, and specify method)

Latitude	1. _____	N(degrees, minutes, seconds)	Longitude	1. _____	W(degrees, minutes, seconds)
	2. _____	N(degrees, minutes, decimal)		2. _____	W(degrees, minutes, decimal)
	3. 29.7425	N(degrees, decimals)		3. 98.4394	W(degrees, decimals)

Latitude/Longitude Data Source: ☐ U.S.G.S topographical map ☐ EPA Web Site ☐ GPS ☑ Other: EPA Website

If you used a U.S.G.S. topographic map, what was the scale?

Horizontal Reference Datum: ☐ NAD 27 ☑ NAD 83 or WGS 84 ☐ Unknown

Is your project located in Indian Country lands? ☐ Yes ☑ No

If yes, provide the name of the Indian tribe associated with the area of Indian country (including name of Indian reservation, if applicable), or if not in Indian country, provide the name of the Indian tribe associated with the property:

Are you requesting coverage under this NOI as a "federal operator" as defined in Appendix A? ☐ Yes ☑ No

Estimated Project Start Date: 03/12/2015 Estimated Project Completion Date: 07/02/2015

Estimated Area to be Disturbed (to the nearest quarter acre): 1.5

Have earth-disturbing activities commenced on your project/site? ☐ Yes ☑ No

If yes, is your project an emergency-related project? ☐ Yes ☑ No

Have stormwater discharges from your project/site been covered previously under an NPDES permit? ☐ Yes ☑ No

If yes, provide the Tracking Number if you had coverage under EPA's CGP or the NPDES permit number if you had coverage under an EPA individual permit:

V. Discharge Information

Does your project/site discharge stormwater into a Municipal Separate Storm Sewer System (MS4)? ☐ Yes ☑ No

Are there any surface waters within 50 feet of your project's earth disturbances? ☐ Yes ☑ No

Receiving Waters and Wetlands Information: (Attach a separate list if necessary)

Surface water(s) to which discharge	Impaired Water	Listed Water Pollutant(s)	Tier 2, 2.5 or 3	Source	TMDL Name and Pollutant
Indian Creek	No		No	City Website	

Describe the methods you used to complete the above table: Please refer to the Source(s) in the above table.

VI. Chemical Treatment Information

Will you use polymers, flocculants, or other treatment chemicals at your construction site? ☐ Yes ☑ No

If yes, will you use cationic treatment chemicals* at your construction site? ☐ Yes ☐ No

If yes, have you been authorized to use cationic treatment chemicals by your applicable EPA Regional Office in advance of filing your NOI*? ☐ Yes ☐ No

If you have been authorized to use cationic treatment chemicals by your applicable EPA Regional Office, attach a copy of your authorization letter and include documentation of the appropriate controls and implementation procedures designed to ensure that your use of cationic treatment chemicals will not lead to a violation of water quality standards.

Please indicate the treatment chemicals that you will use:

* Note: You are ineligible for coverage under this permit unless you notify your applicable EPA Regional Office in advance and the EPA office authorizes coverage under this permit after you have included appropriate controls and implementation procedures designed to ensure that your use of cationic treatment chemicals will not lead to a violation of water quality standards.

VII. Stormwater Pollution Prevention Plan (SWPPP) Information

Has the SWPPP been prepared in advance of filing this NOI? ☑ Yes ☐ No

SWPPP Contact Information:

First Name, Middle Initial, Last Name: Shelly Eklund

Organization: Bulverde Properties LLC

Phone: 830-237-2679 Fax (Optional): 830-980-8650

E-mail: selkund@ae4cool.com

VIII. Endangered Species Protection

Using the instructions in Appendix D of the CGP, under which criterion listed in Appendix D are you eligible for coverage under this permit (only check 1 box)?

☑ A ☐ B ☐ C ☐ D ☐ E ☐ F

Provide a brief summary of the basis for criterion selection listed in Appendix D (e.g., communication with U.S. Fish and Wildlife Service or National Marine Fisheries Service, specific study):Appendix A

If you select criterion B, provide the Tracking Number from the other operator's notification of authorization under this permit:

If you select criterion C, you must attach a copy of your site map (see Part 7.2.6 of the permit), and you must answer the following questions:

What federally-listed species or federally-designated critical habitat are located in your "action area":

What is the distance between your site and the listed species or critical habitat (miles):

If you select criterion D, E, or F, attach copies of any letters or other communications between you and the U.S. Fish and Wildlife Service or National Marine Fisheries Service.

IX. Historic Preservation

Is your project/site located on a property of religious or cultural significance to an Indian tribe? ☐ Yes ☑ No

If yes, provide the name of the Indian tribe associated with the property:

Are you installing any stormwater controls as described in Appendix E that require subsurface earth disturbance? (Appendix E, Step 1) ☐ Yes ☑ No

If yes, have prior surveys or evaluations conducted on the site have already determined historic properties do not exist, or that prior disturbances have precluded the existence of historic properties? (Appendix E, Step 2) ☐ Yes ☐ No

If no, have you determined that your installation of subsurface earth-disturbing stormwater controls will have no effect on historic properties? (Appendix E, Step 3) ☐ Yes ☐ No

If no, did the SHPO, THPO, or other tribal representative (whichever applies) respond to you within the 15 calendar days to indicate whether the subsurface earth disturbances caused by the installation of stormwater controls affect historic properties? (Appendix E, Step 4) ☐ Yes ☐ No

If yes, describe the nature of their response:

☐	Written indication that adverse effects to historic properties from the installation of stormwater controls can be mitigated by agreed upon actions.
☐	No agreement has been reached regarding measures to mitigate effects to historic properties from the installation of stormwater controls.
☐	Other:

X. Certification Information

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.

First Name, Middle Initial, Last Name: Xavier Torres

Title: Professional Engineer

Signature: Date:

E-mail: xtorres@torresengineering.net

Company: Bulverde Properties LLC
ATTN: Shelly Eklund
P.O. Box 89
Bulverde TX 78163

Project/Site: Bulverde Retail Center
2975 Bulverde Rd
Bulverde TX 78163

Permit Tracking Number: TXR12EX9F

Thank you for using the eNOI system to prepare your Construction General Permit (CGP) Notice of Intent (NOI).

The CGP NOI with permit tracking number TXR12EX9F is pending certification by the certifying official you listed on the form. The CGP NOI is not considered complete until it has been certified by the certifying official and submitted to EPA.

If you have any questions, please call the EPA NOI Processing Center at 1-866-352-7755 (toll free) or send an email to noi@avanticorporation.com.

EPA NOI Processing Center
Operated by Avanti Corporation
1200 Pennsylvania Ave., NW
Mail Code: 4203M
Washington, DC 20460

Texas Commission on Environmental Quality
Edwards Aquifer Protection Program
Application Fee Form

NAME OF PROPOSED REGULATED ENTITY: Bulverde Retail Center
REGULATED ENTITY LOCATION: 2925 Bulverde Rd.
NAME OF CUSTOMER: Bulverde Hills Properties, LLC
CONTACT PERSON: Xavier Torres PHONE: 210-680-0808
(Please Print)

Customer Reference Number (if issued): CN _____ (nine digits)

Regulated Entity Reference Number (if issued): RN _____ (nine digits)

Austin Regional Office (3373) ☐ Hays ☐ Travis ☐ Williamson

San Antonio Regional Office (3362) ☒ Bexar ☐ Comal ☐ Medina ☐ Kinney ☐ Uvalde

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 (Check One):

☐ **Austin Regional Office**

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

☒ **San Antonio Regional Office**

☐ **Overnight Delivery to TCEQ**:
TCEQ - Cashier
12100 Park 35 Circle
Building A, 3rd Floor
Austin, TX 78753
512/239-0347

Site Location (Check All That Apply): ☐ Recharge Zone ☒ Contributing Zone ☐ Transition Zone

Type of Plan	Size	Fee Due
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	Acres	$ 4,000.00
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

10-19-14
Date

If you have questions on how to fill out this form or about the Edwards Aquifer protection program, please contact us at 210/490-3096 for projects located in the San Antonio Region or 512/339-2929 for projects located in the Austin Region.

Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, contact us at 512/239-3282.

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

Water Pollution Abatement Plans and Modifications
Contributing Zone Plans and Modifications

PROJECT	PROJECT AREA IN ACRES	FEE
One Single Family Residential Dwelling	< 5	$650
Multiple Single Family Residential and Parks	< 5 5 < 10 10 < 40 40 < 100 100 < 500 ≥ 500	$1,500 $3,000 $4,000 $6,500 $8,000 $10,000
Non-residential (Commercial, industrial, institutional, multi-family residential, schools, and other sites where regulated activities will occur)	< 1 1 < 5 5 < 10 10 < 40 40 < 100 ≥ 100	$3,000 $4,000 $5,000 $6,500 $8,000 $10,000

Organized Sewage Collection Systems and Modifications

PROJECT	COST PER LINEAR FOOT	MINIMUM FEE MAXIMUM FEE
Sewage Collection Systems	$0.50	$650 - $6,500

Underground and Aboveground Storage Tank System Facility Plans and Modifications

PROJECT	COST PER TANK OR PIPING SYSTEM	MINIMUM FEE MAXIMUM FEE
Underground and Aboveground Storage Tank Facility	$650	$650 - $6,500

Exception Requests

PROJECT	FEE
Exception Request	$500

Extension of Time Requests

PROJECT	FEE
Extension of Time Request	$150

TCEQ Core Data Form

TCEQ Use Only

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)*

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

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

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

[ ] Yes [ ] No

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

SECTION II: Customer Information

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

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

[ ] Owner [ ] Operator [X] Owner & Operator
[ ] Occupational Licensee [ ] Responsible Party [ ] Voluntary Cleanup Applicant [ ] Other:

7. General Customer Information

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

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

8. Type of Customer:			
[ ] City Government	[ ] County Government	[ ] Federal Government	[ ] State Government
[ ] Other Government	[ ] General Partnership	[ ] Limited Partnership	[X] Other: LLC

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

Bulverde Hills Properties, LLC

10. Mailing Address: P.O. Box 99

City: Bulverde State: TX ZIP: 78163 ZIP + 4: 0089

11. Country Mailing Information *(if outside USA)*

12. E-Mail Address *(if applicable)*

13. Telephone Number (830)237-2679 **14. Extension or Code** **15. Fax Number** *(if applicable)* (830)980-8650

16. Federal Tax ID *(9 digits)* 46-3599743 **17. TX State Franchise Tax ID** *(11 digits)* 32051911181 **18. DUNS Number** *(if applicable)* **19. TX SOS Filing Number** *(if applicable)* 801845843

20. Number of Employees

[X] 0-20 [ ] 21-100 [ ] 101-250 [ ] 251-500 [ ] 501 and higher

21. Independently Owned and Operated?

[X] Yes [ ] No

SECTION III: Regulated Entity Information

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

[X] New Regulated Entity [ ] Update to Regulated Entity Name [ ] Update to Regulated Entity Information [ ] No Change** *(See below)*

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

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

Bulverde Retail Center

24. Street Address of the Regulated Entity: (No P.O. Boxes)	2925 Bulverde Rd.							
	City	Bulverde	State	TX	ZIP	78163	ZIP + 4	
25. Mailing Address:	P.O. Box 89							
	City	Bulverde	State	TX	ZIP	78163	ZIP + 4	0089
26. E-Mail Address:	SEklund@ae4cool.com							

27. Telephone Number	28. Extension or Code	29. Fax Number (if applicable)
(830) 237-2679		(830) 980-8650

30. Primary SIC Code (4 digits)	31. Secondary SIC Code (4 digits)	32. Primary NAICS Code (5 or 6 digits)	33. Secondary NAICS Code (5 or 6 digits)
5999	5999	53231	

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

Retail Center

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

35. Description to Physical Location:	Northwest corner of the Intersection Between Bulverde Rd. (FM 1863) & Saddle Ridge Dr.		
36. Nearest City	County	State	Nearest ZIP Code
Bulverde	Comal	TX.	78163

37. Latitude (N) In Decimal:	29.7425°	38. Longitude (W) In Decimal:	98.4394
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

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

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

SECTION IV: Preparer Information

40. Name:	Shelley Eklund	41. Title:	Agent

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(830) 237-2679	—	(830) 980-8650	seklund@ae4cool.com

SECTION V: Authorized Signature

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

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

Company:	Bulverde ~~Rep~~ Hills Properties, LLC	Job Title:	Agent
Name (In Print):	Shelley Eklund	Phone:	(830) 237-2679
Signature:	Shelley Eklund	Date:	12/19/14

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

I Roy Eklund,
Print Name

President,
Title - Owner/President/Other

of Bulverde Hills Properties, LLC,
Corporation/Partnership/Entity Name

have authorized Xavier Torres, P.E.
Print Name of Agent/Engineer

of Torres Engineering
Print Name of Firm

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

I also understand that:

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

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

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

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

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

SIGNATURE PAGE:

Applicant's Signature

8-14-14
Date

THE STATE OF Texas §

County of Bexar §

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

GIVEN under my hand and seal of office on this 14 day of August, 2014.

LYNDA M. PARKS
Notary Public, State of Texas
My Commission Expires
February 22, 2018

Lynda M Parks
NOTARY PUBLIC

LYNDA M. PARKS
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: February 22, 2018

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

I Ray Eklund,
Print Name

President ~~of Bulverde Hills Properties~~,
Title - Owner/President/Other

of Bulverde Hills Properties, LLC,
Corporation/Partnership/Entity Name

have authorized Shelley Eklund
Print Name of Agent/Engineer

of Bookkeeper for Bulverde Hills Properties, LLC
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.

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SIGNATURE PAGE:

Applicant's Signature

12/18/14
Date

THE STATE OF Texas §

County of Comal §

BEFORE ME, the undersigned authority, on this day personally appeared Roy Eklund 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 18 day of December, 2014.

PAULA B. STAKES
Notary Public, State of Texas
My Commission expires
November 4, 2018

NOTARY PUBLIC

Paula B. Stakes
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 11/4/2018

Bulverde Retail Center

Torres Engineering

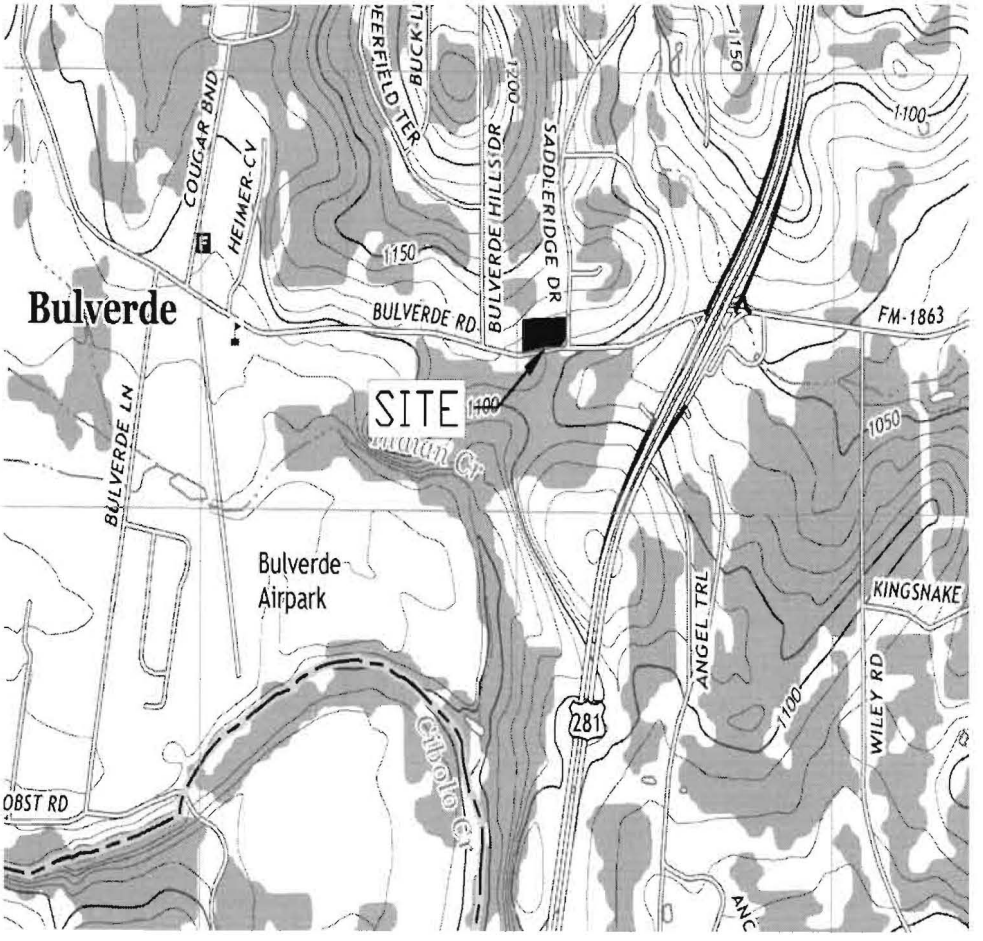
5503 Grissom Rd, Ste. 101
San Antonio, TX 78238
210-680-0808

N.P.D.E.S.
Storm
Water
Pollution
Prevention
Plan

12/13/14

TABLE OF CONTENTS

LOCATION MAP



SITE DESCRIPTION

Bulverde Retail Center is a commercial development consisting of a 12,750 square foot building and a 31,938 square foot parking lot. The building will be served by a private septic system and public water. The parking lot will be constructed of pervious concrete. The landscape will be irrigated by conventional means and by harvesting rainwater from the rooftops. The project will also consist of dry utilities such as but not limited to electrical, telephone and or cable services.

A. NATURE OF CONSTRUCTION

Construction will involve:

Potential sources of pollution that may reasonably be expected to affect the quality of storm water discharges from the construction site include:

- Soil erosion due to clearing of site excavation and topsoil disruption.
- Oil, grease, fuel and hydraulic fluid contamination from construction vehicle drippings.
- Hydrocarbons from asphalt paving operations associated with local road repairs and patching.
- Miscellaneous trash and litter from construction workers and material wrappings.
- Construction material waste and construction debris.
- Concrete truck washout.

B. SEQUENCE OF MAJOR ACTIVITIES

The sequence of the construction of this site will be the construction of a parking lot, a building, a on-site sewerage facility, irrigation lines, sidewalks and dry utilities such as but not limited to cable, phone and electric. The major activities which will disturb the soil during construction will include:

- Clearing vegetation.
- Grading (excavation and backfill).
- Construction of the on-site sewerage facility.
- Placement of concrete.

- Placement of concrete curbs.
- Placement of permeable pavement surface.
- Site clean-up (removal of excess materials).
- Site clean-up, grading topsoil in the parkway areas.

The following on-site stabilization measures include:

- Erection of silt fences, type II construction exit and rock berm/silt fence combination.

A concrete truck washout pit, stabilized construction entrance/exits, and material storage area will be required during the construction phase. The concrete truck washout pits (Exhibit 5) and material storage areas (Exhibit 8) required by the contractor shall be located at the entrance of the site, as shown on the Pollution Prevention Plan attached to this report. Stabilized construction entrance/exit(s) are to be established perpendicular to and abutting the existing roadway(s) where access to the project is required and shall be placed within the designated, established right-of-way of the project. (Refer to Exhibit 4, stabilized construction entrance without wheel washing). Stabilized construction entrance/exit(s) constructed perpendicular to roadways with an existing earthen drainage ditch are to be constructed to about the existing roadway and shall be placed within the designated, established right-of-way of the project.

C. AREA OF SITE AND DISRUPTION

Construction of the 1.978 ± acres will involve clearing, excavation, and construction of a Building and parking lot will disturb approximately 80% of the total area as follows:

AREA (ACRES ±)	DISRUPTION (% OF TOTAL AREA ±)	CONSTRUCTION	
		ESTIMATED START	ESTIMATED COMPLETE
1.978	1.566	3/2/15	7/2/15

D. RUNOFF COEFFICIENT

Estimated runoff coefficients for the site, illustrating the change in the anticipated storm water runoff as a result of the construction on the subject property, are as follows:

AREA (ACRES ±)	RUNOFF COEFFICIENT	
	BEFORE	AFTER
1.978	33	33

E. SITE PLANS

Site plans reflecting the topography of the project are included in the project construction plans

F. RECEIVING WATERS

This project will discharge storm water into Bulverde Rd located the northwest corner of the intersection between Bulverde Rd and Saddle Ridge Rd.

G. ENDANGERED SPECIES

There are no known listed endangered or threatened species, or critical habitat known to be on or in proximity to the development site.

H. NATIONAL REGISTER OF HISTORIC PLACES

There are no known on-site historic places listed, or eligible for listing, on the National Register of Historic Places that could be affected by storm water discharge or by storm water discharge-related activities.

CONTROLS

A. EROSION AND SEDIMENT CONTROLS

1. STABILIZATION PRACTICES

Construction activities include utility installation, road and site cleanup. Prior to initiation of construction all control measures must be properly installed. Generally, limited off-site storm water runoff will not effect the site. Storm water originating on site will be collected in the construction of streets, right-of-way, filtered as required, and continue to discharge throughout an inlet that discharges into a sedimentation pond at the southwest part of the project:

- Soil disturbances shall be minimized by exposing only the smallest practical area of land required for the construction activity and for the shortest practical period of time.
- Maximum practical use will be made of natural vegetation including grass, weeds, trees, shrubs, etc. by leaving these materials in place until construction necessitates clearing the minimum practical area for continuance of construction.
- All remaining disturbed soil shall be re-vegetated as required.

2. STRUCTURAL PRACTICES

On-site storm water runoff from this development project will be discharged through a silt fence all around the south property lines. Structural measures which will be used to control erosion and sedimentation include the following:

- A stabilized construction entrance/exit, and concrete truck washout pit.
- A silt fence will be erected along a line of uniform elevation (perpendicular to the direction of flow) along the west and south property lines.

The location of Best Management Practices (B.M.P.'s) such as silt fencing, rock/silt fence berms, stabilized construction entrance/exits, etc., shown on these plans are subject to field verification. Contractor shall adjust the locations of B.M.P.'s to best accommodate the conditions and topography encountered during construction. Questions regarding the placement and/or changes concerning B.M.P.'s shall be referred to the engineer. The contractor is to ensure that sedimentation and erosion will be contained within the designated project work areas.

B. STORM WATER MANAGEMENT

Temporary Storm Water Management:

Temporary storm water management will include silt fences. These features form the basis of the Pollution Prevention Plan. Storm water runoff from all areas on-site will exit the construction alignment either through sheet flow through a silt fence, that will slow the velocity of runoff thereby enhancing sedimentation and capture of contaminants that may accumulate in storm water runoff existing this subdivision site.

Permanent Storm Water Management:

Permanent storm water management practices will include Permeable concrete parking lot, permeable concrete sidewalk and rainwater harvesting from roof tops.

C. OTHER CONTROLS

- Vehicular traffic leaving the construction site will exit through the stabilized construction exit, located on the job site as needed. When soils have collected on the stabilized vehicular exit to an extent which reduces its intended effectiveness, the surface will be cleaned and reestablished for its designed or intended purpose.
- Mud/dirt inadvertently tracked off-site and onto public streets shall be removed immediately by hand or mechanical broom sweeping.
- Construction and waste materials shall be stored within a designated storage area. Bulk materials such as sand, construction materials, topsoil, spoils, etc. will be bordered on the downgrade sides with a silt fence as detailed in Exhibit 2 . A list of materials to be stored on-site should be recorded and regularly updated on Exhibit 9.
- An area shall be designated as a construction equipment storage area. Construction equipment (except large slow moving equipment) not removed from the site at night shall be stored in the containment area.
- Excavation spoils temporarily stored on-site, pending off-site disposal in accordance with applicable regulations, shall be bordered on the downgrade side by a silt fence as detailed in Exhibit 2 and recorded on Exhibit 9.
- Excavated topsoil temporarily stored on-site, pending replacement of the topsoil to disturbed areas shall be bordered on the downgrade side by a silt fence as detailed in Exhibit 2.
- Bedding and backfill materials temporarily stored on-site to be used during construction of the utilities and roads shall be bordered on the downgrade side by a silt fence as detailed in Exhibit 2.
- The designated construction equipment storage area shall have a single entrance and will be bordered on the downgrade sides by a silt fence as detailed in Exhibits 2.

- Sediment collected behind silt fences will be periodically collected and placed as fill material within the property or removed off-site to an approved location in accordance with applicable regulations. Contaminated sediments will be disposed off-site in accordance with applicable regulations.
- The use of temporary, construction fuel storage tanks on-site will not be allowed for this project.
- Intentional release of vehicle or equipment fluid onto the ground is prohibited. Tainted soil resulting from accidental spills shall be removed and disposed of off-site in accordance with applicable regulations.
- Scheduled construction equipment and vehicle maintenance accomplished on-site shall be done within the construction and vehicle storage area.
- A controlled area on-site shall be designated as a rinse-out pit for concrete trucks. Rinse-out pits located on the job site as needed, shall be periodically drained and cleaned and waste shall be disposed off-site in accordance with applicable regulations. Rinse-out pits shall be surrounded by a berm or hay bales to prevent run-off of contaminated water.
- Additional rinse-out pits may be added as construction conditions are required. The contractor will advise his concrete suppliers of the requirements to utilize the rinse-out pits for the intended purpose.
- Construction waste materials, domestic garbage, etc. shall be periodically collected and disposed off-site in accordance with applicable regulations.
- Trash receptacles will be established at storage locations, in the vicinity of equipment storing and near the construction areas. Receptacles shall be emptied as required and disposed off-site in accordance with applicable regulations.

MAINTENANCE

Structural controls shall be inspected as stipulated in this plan. Structural units shall be maintained to perform the function as intended. When a structure deteriorates to a condition so that its performance is less than intended, the structure shall be repaired or replaced to full function as specified.

- Particular attention should be paid to the sedimentation areas behind silt fences. When the sediment has accumulated to six inches or more behind a berm or silt fence (from silting, construction debris, tree trimming, trash, municipal type garbage, etc.) it will be removed and the berms and silt fences will be restored to their original specifications. Contaminated sediment removed from containment areas (vehicle maintenance, concrete wash out pits, etc.) shall be disposed of off-site in accordance with appropriate regulations.

- Exhibit 10 lists the various major components of this pollution prevention plan and identifies the party responsible for its function, maintenance and inspections. A plan Implementation Checklist is included as Exhibit 11.

INSPECTIONS

Designated and qualified person(s) shall inspect Pollution Control Measures every fourteen days and within 24 hours after a storm event greater than 0.5 inches of rainfall. An inspection report that summarized the scope of the inspection, names and qualifications of personnel conducting the inspection, date of inspection, major observations and actions taken as a result of the inspection shall be recorded and maintained as part of Storm Water NPDES data for a period of three (3) years after the date of the inspection. A copy of the Inspection Report Form is provided in this Storm Water Pollution Plan.

As a minimum, the inspector shall observe: (1) significant disturbed areas for evidence of erosion, (2) storage areas for evidence of leakage from the exposed stored materials, (3) structural controls (rock berm outlets, silt fences, drainage swales, etc.) for evidence of failure or excess siltation (over 6 inches deep), (4) vehicle exit point for evidence of off-site sediment tracking, (5) vehicle storage areas for signs of leaking equipment of spills, and (6) concrete truck rinse-out pit for signs of potential failure. Deficiencies noted during the inspection will be corrected and documented within seven (7) calendar days following the inspection.

Exhibit 10 lists the various major components of this pollution prevention plan and identifies the responsible owner/operator for its function, maintenance and inspection. A plan Implementation Checklist is included as Exhibit 11.

NON-STORM WATER DISCHARGES

Storm water discharges from this development may be intermittently mixed with non-storm water discharges from fire hydrant flushing, water used to wash vehicles or control dust, potable and recycled water line flushing, irrigation drainage from watering vegetation, pavement wash waters, where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed), and dewatering ground water filtration.

The above non-storm water components would exit the site via the storm water drainage paths and would be subject to the same filtering and sedimentation provided by the sedimentation pond channels and structural controls used for storm water runoff. There will be no storm water discharges from industrial activity

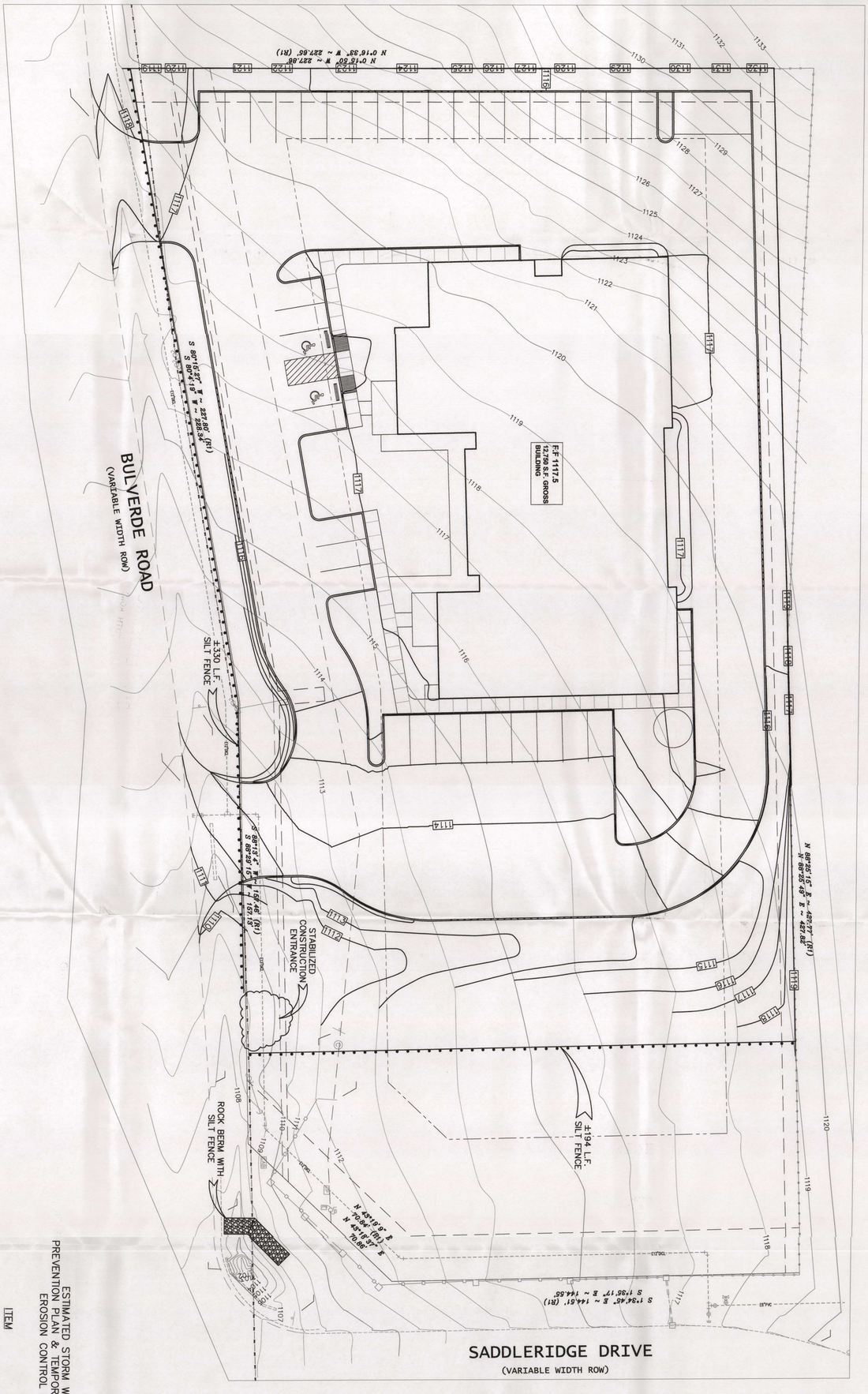
SOIL IDENTIFICATION

0-1 ft depth is fat clay

1-30 Very hard limestone

EXHIBITS

A. **Project Drawings**



ESTIMATED STORM WATER POLLUTION PREVENTION PLAN & TEMPORARY SEDIMENTATION AND EROSION CONTROL PLAN QUANTITIES

ITEM	UNIT	QUANTITY
STABILIZED CONSTRUCTION ENTRANCE	EACH	1
SILT FENCE	L.F.	± 524
ROCK BERM W/ SILT FENCE	L.F.	± 29

SEDIMENTATION PLAN (SWPPP) FOR BULVERDE RETAIL CENTER 2925 BULVERDE RD BULVERDE, TEXAS

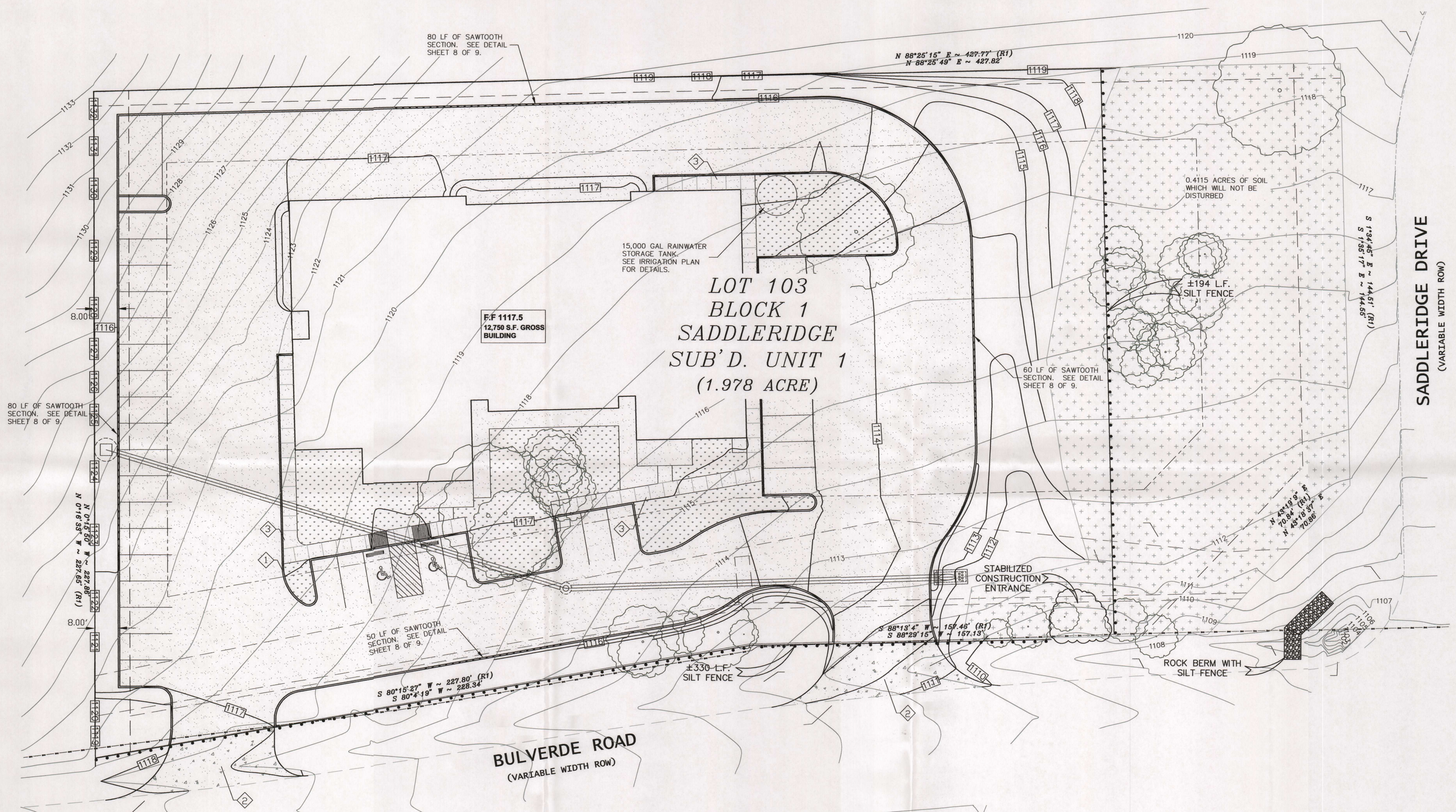
REVISIONS			
NO.	DATE	DESCRIPTION	BY

STATE OF TEXAS
XAVIER A. TORRES
93953
LICENSED
PROFESSIONAL ENGINEER
12/13/14

DATE: OCT 14, 2014
DESIGNED BY:
DRAWN BY:
CHECKED BY:
SCALE: 1" 20'
FILE NAME:

TORRES ENGINEERING P.C.
TBPE FIRM # F-13692
5503 GRISSOM RD, STE. 101 (210) 680-0808
SAN ANTONIO, TEXAS 78238

SEDIMENTATION



GRAPHIC SCALE

40 0 10 20 40

(IN FEET)
1 inch = 20 ft.

LEGEND:

832	EXISTING CONTOUR
832	FINISHED CONTOUR
▨	CONCRETE
▨	PERMEABLE CONCRETE PARKING LOT
▨	GRASS – AREA OF SOIL STABILIZATION
▨	AREA OF UNDISTURBED SOIL
○	EXISITNG TREES

NOTES:

1. THE AREA OF DISTURBED SOIL WILL BE LOCATED OUTSIDE OF THE UNDISTURBED AREA WHICH IS APPROXIMATELY 1.55 ACRES.
2. USE LANDLOK 300 PERMANENT TURF REINFORCEMENT MAT FOR SOIL STABILIZATION. SEE CONTECH ENGINEERED SOLUTIONS INSTALLATION GUIDE.

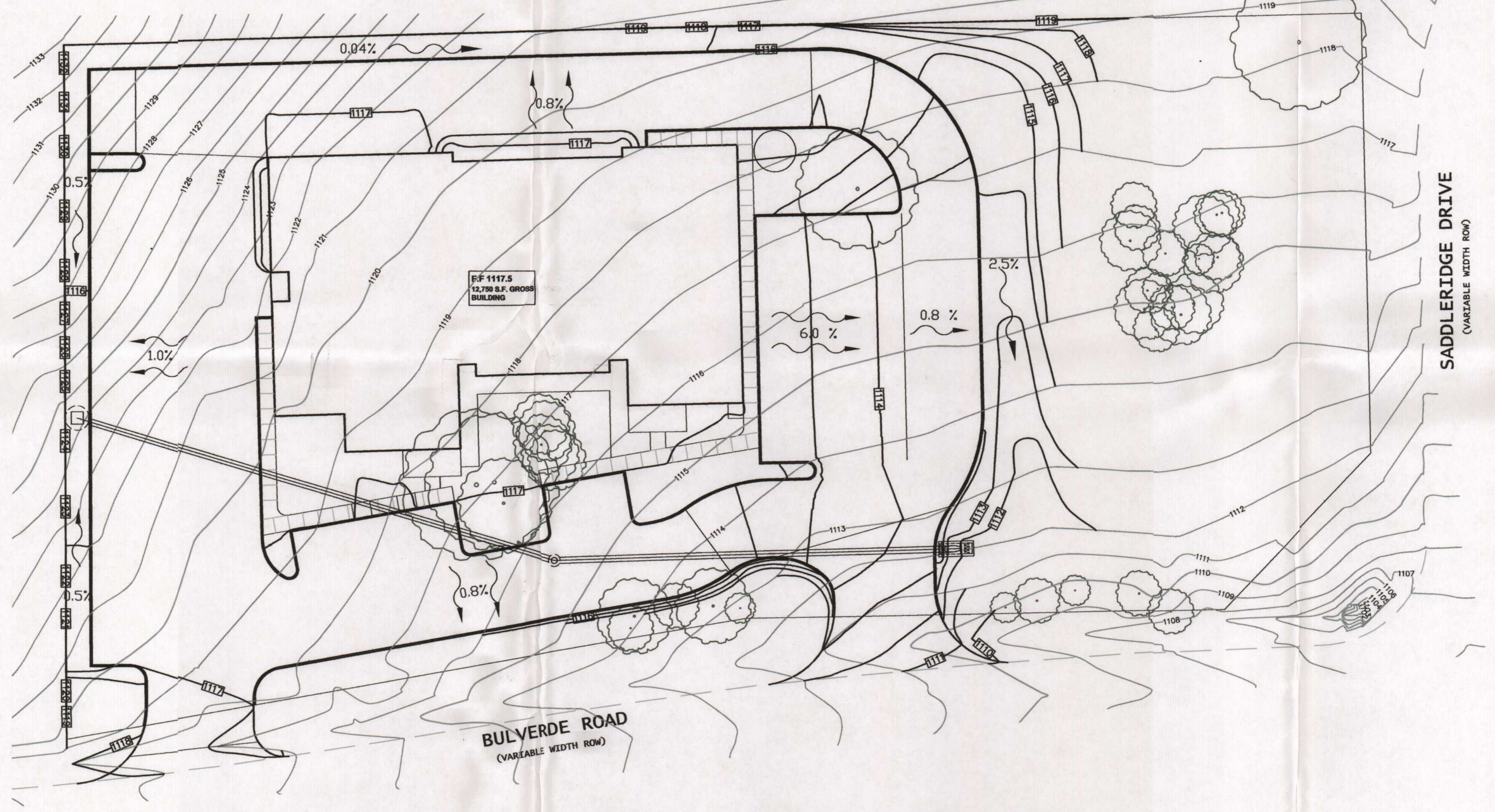
KEY NOTE LIST:

1. CONCRETE CURB. (TYP.).
2. CONCRETE DRIVEWAY.
3. PERMEABLE SIDEWALK.

TEMPORARY BEST MANAGEMENT PRACTICES

ESTIMATED STORM WATER POLLUTION PREVENTION PLAN & TEMPORARY SEDIMENTATION AND EROSION CONTROL PLAN QUANTITIES

ITEM	UNIT	QUANTITY
STABILIZED CONSTRUCTION ENTRANCE	EACH	1
SILT FENCE	L.F.	± 524
ROCK BERM W/ SILT FENCE	L.F.	± 29



DRAINAGE PATTERNS AND APPROX. SLOPES AFTER GRADING

SCALE:
1 INCH = 40 FT.

LEGEND:

~~▶	DRAINAGE PATTERNS
1.0 %	APPROX. SLOPE

TORRES ENGINEERING P.C.
TBPE FIRM # F-13692
5503 GRISSOM RD, STE. 101 (210) 680-0808
SAN ANTONIO, TEXAS 78238

DATE: DEC. 13, 2014
DESIGNED BY: X.A.T.
DRAWN BY: J.D.C.
CHECKED BY: X.A.T.
SCALE: 1" 20'
FILE NAME:

STATE OF TEXAS
XAVIER A. TORRES
93953
LICENSED PROFESSIONAL ENGINEER
12/13/14

Xavier Torres

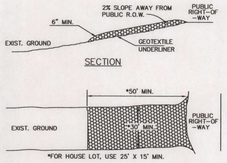
REVISIONS

NO.	DATE	DESCRIPTION	BY

TCEQ SITE PLAN FOR BULVERDE RETAIL CENTER 2925 BULVERDE RD BULVERDE, TEXAS

TCEQ SITE

SHEET 1A OF 1



PLAN VIEW

STABILIZED CONSTRUCTION ENTRANCE/EXIT

WITHOUT WHEEL WASHING

N.T.S.

GENERAL NOTES:

Clear all vegetation, roots and all other obstructions in preparation for grading.

Prior to placing geotextile (filter fabric) make sure that the entrance is properly graded and compacted.

To reduce maintenance and loss of aggregate place geotextile fabric (filter cloth) over the existing ground before placing the stone for the entrance.

Stone should be placed to a depth of 6-inches or greater for the entire width and length.

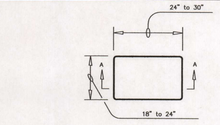
Width should be not less than full width of all points of ingress or egress. Flare the entrance where it meets existing road to provide a turning radius.

Periodic maintenance will be required to prevent tracking onto public right-of-way or any roadway. All sediment spilled, dropped, or tracked onto any public right-of-way must be removed immediately.

MATERIALS:

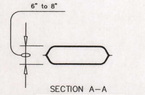
- Crushed stone 4-inches – 8-inches in diameter.
- Geotextile (filter fabric) with the properties listed below.

Physical Property	Requirements
Grab Tensile Strength	220 lbs. (ASTM D4632)
Elongation Failure	60% (ASTM D4632)
Mullen Burst Strength	430 lbs. (ASTM D3786)
Puncture Strength	125 lbs. (ASTM D4833)
Equivalent Opening	Size 40-80 (US Std Sieve)(ASTM D4751)



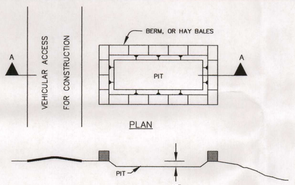
GRAVEL FILTER BAG DETAIL

N.T.S.



SECTION A-A

1. The filter bag material shall be made of polypropylene, polyethylene or polyamide woven fabric, min. unit weight of 4 ounces/SY, Mullen burst strength exceeding 300 psi and ultraviolet stability exceeding 70%.
2. The filter bag shall be filled with clean, medium to coarse gravel (0.31 to 0.75 inch diameter).



CONCRETE TRUCK WASHOUT PIT

N.T.S.

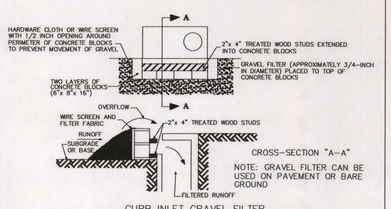
GENERAL NOTES:

Detail above illustrates minimum dimensions. Pit can be increased in size depending on expected frequency of use.

If hay bales are used, they shall be placed in accordance with details shown on Exhibit for hay bales.

Washout pit shall be located in an area easily accessible to construction traffic.

Washout pit shall not be located in areas subject to inundation from storm water runoff.



CURB INLET GRAVEL FILTER

N.T.S.

GENERAL NOTES:

All storm drainage systems inlets should filter runoff before the water is discharged into streams or onto adjacent properties, unless treatment is provided elsewhere.

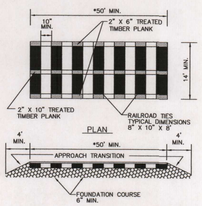
If no additional downstream treatment exists, the maximum drainage area tributary to and area drain installed with a gravel filter should be one acre.

Curb inlet gravel filters should be constructed with a combination of concrete blocks, 1/2-inch wire screen, coarse (approximately 3/4-inch diameter) gravel and a 2"x 4" wood stud for support. Concrete blocks (6"x 8" x 16") may be placed either on their sides or stood on their ends depending on the area being served.

Gravel filters can be used if the immediate and adjacent area to the drain consists of soil or pavement. However, only gravel filters should be installed on top of pavement.

All curb inlet gravel filters should be inspected and repaired after each runoff event. Sediment should be removed when material is within three inches if the top of the concrete blocks. Periodically, the gravel should be raked to increase infiltration and filtering of runoff waters.

Gravel can be placed in porous sacks which will allow water to flow through gravel and help prevent downstream migration of gravel.



CONSTRUCTION EXIT (TYPE 2)

N.T.S.

GENERAL NOTES:

The length of the type 2 construction exit shall be as indicated on the plans, but not less than 50 ft.

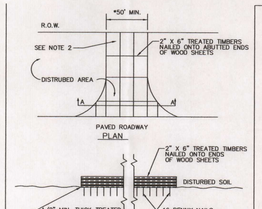
The treated timber planks shall be attached to the railroad ties with 1/2" x 6" min. lag bolts. Other fasteners may be used as approved by the Engineer.

The treated timber planks shall be #2 grade min. and should be free of large loose knots.

The approach transitions should be no steeper than 6:1 and constructed as directed by the Engineer.

The construction exit foundation course shall be flexible base, bituminous concrete, Portland cement concrete or other material as approved by the Engineer.

The construction exit should be graded to allow drainage to a sediment trapping device.

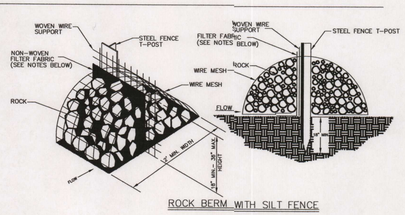


CONSTRUCTION EXIT (TYPE 3)

N.T.S.

GENERAL NOTES:

The length of the type 3 construction exit shall be as indicated on the plans or by directed by the Engineer.
The type 3 construction exit may be constructed from open graded crushed with a size of two to four inches of spread, a minimum of 4" thick to the limits shown on the plans.
The treated timber planks shall be #2 grade min. and should be free of large loose knots.



ROCK BERM WITH SILT FENCE

GENERAL NOTES:

- The top of the rock berm should be level and oriented perpendicular to the direction of flow.
- Steel fence T-posts should be embedded a minimum of 18 inches.
- Woven wire support shall be fastened to steel fence posts.
- Filter fabric material shall be fastened to woven wire support.
- Filter fabric material should meet the following specifications:
  Resistant to ultraviolet light, Fabric should be non-woven geotextile with minimum weight of 3.5 ounces per square yard, minimum mullen burst strength of 200 pounds per square inch and a flow through rate of 120 gallons per minute per square foot of frontal area.
- Stone size: ±3"-5" open graded crushed limestone.
- Inspect weekly or after each rainfall event and repair or replace as needed
- When silt reaches a depth of 6 inches or more above natural ground, silt shall be removed and disposed in an approved manner that will not contribute to resiltation. Uncontaminated sediment deposits remaining in place after the filter fence has been removed should be dressed to conform with the existing grade and stabilized. Contaminated sediment must be removed and disposed of off-site in accordance with applicable regulations.
- Remove silt fence/rock berm after construction site is completely stabilized.

INSTALLATION:

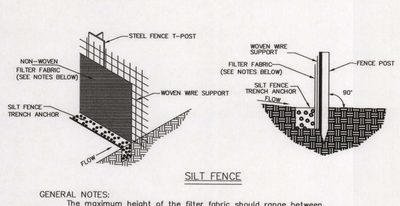
- Layout the rock berm following the contour as closely as possible.
- Clear the area of debris, rocks or plants that will interfere with installation.
- Place wire mesh on the ground along the proposed installation with enough overlap to completely encircle the finished size of the berm.
- Install the silt fence (steel-t posts, woven wire support, and filter fabric) along the center of the proposed berm placement.
- Place the rock along the center of the woven wire mesh on both sides of the silt fence to the designated height.
- Wrap the structure with the previously placed woven wire mesh secure enough so that when walked across the structure retains it's shape.
- Secure with tie wire.

MATERIALS:

- Synthetic filter fabric should contain ultraviolet ray inhibitors and stabilizers to provide a minimum of 70% strength retained after 500 hours.
- Burlap of 10 ounces per square yard of fabric may also be used.
- The filter fabric should be purchased in continuous rolls to minimize joints.
- Woven wire support sheathing shall be a minimum 20 gauge with 1 inch openings.

MAINTENANCE:

- Inspect regularly and after every storm. Make any repairs necessary to ensure the rock berm is in good working order.
- Sediment should be removed and the structure restored to its original dimensions when sediment has accumulated to a depth of 6".
- Clean or remove and replace the stone filter or filter fabric if they become clogged.
- Rock berm should remain in place and operational until the drainage area is stabilized.



SILT FENCE

GENERAL NOTES:

The maximum height of the filter fabric should range between 18 and 36 inches above the ground surface (depending on the amount of upslope ponding expected).

Posts should be spaced 8 to 10 feet apart when a woven wire support fence is used and not more than 6 feet apart when extra strength filter fabric (without a woven wire support fence) is used. The posts should be embedded a minimum of 18 inches.

A trench should be excavated 4 to 8 inches wide and 4 to 12 inches deep along the upslope side of the line of posts.

If standard strength filter fabric is to be used, the optional woven wire support fence should be fastened to the upslope side of the posts. Extend the woven wire support to the bottom of the trench. The filter fabric should be fastened using 4 evenly spaced staples or T-clips to the woven wire support fence, and 8 to 20 inches of the fabric should extend into the trench.

Extra strength filter fabric does not require a woven wire support fence. Fastened the filter fabric directly to the posts and extend 8 to 20 inches of the fabric into the trench.

Where joints in the filter fabric are required, the filter fabric should be spliced together only at a support post, with a minimum 6-inch overlap and securely sealed.

Do not attach filter fabric to trees.

Backfill the anchor trench with compacted soil or 0.75 inch minimum diameter gravel placed over the filter fabric.

Remove silt fence when the construction site is completely stabilized.

Inspect silt fences daily during periods of prolonged rainfall, immediately after each rainfall event, and weekly during periods of no rainfall. Make any required repairs immediately.

- Sediment must be removed when it reaches a depth of 6". Take care to avoid damaging the fence during cleanout.
- Silt fences should not be removed until the upslope area has been permanently stabilized. Contaminated sediment deposits must be removed and disposed of off-site in accordance with applicable regulations. Uncontaminated sediment deposits remaining in place after the silt fence has been removed should be dressed to conform with the existing grade, and stabilized.
- Place silt fence along a line of uniform elevation, perpendicular to the direction of flow.

MATERIALS:

- Fence posts ma be either 4' min. steel or wood posts spaced at 6' to 8'. Softwood shall be 3" min. dia. or nominal 2" x 4". Hard wood posts shall have a min. cross section 1.5" x 1.5".
- Synthetic filter fabric should be a pervious sheet of polypropylene, nylon, polyester, or polyethylene yarn conforming to the requirements below:

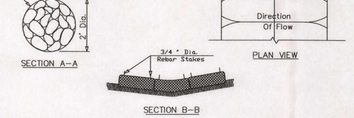
SYNTHETIC FILTER FABRIC REQUIREMENTS

Physical Property	Requirements
Minimum Weight	3.5 ounces per square yard (ASTM 3776-84)
Min. Mullen Burst Strength	200 lbs per square inch (ASTM 3786-87)
Maximum flow through rate	100 GPM/SF of frontal area (ASTM 4491-85)

- Burlap of 10 ounces per square yard of fabric can also be used.
- The filter fabric should be purchased in continuous rolls to minimize joints.

MAINTENANCE:

- Inspect regularly and after every storm. Make any repairs necessary to ensure the measure is in good working order.
- Sediment should be removed and the structure restored to its original dimensions when sediment has accumulated to a depth of 6".
- Clean or remove and replace the stone filter or filter fabric if they become clogged.
- Inlet protection should remain in place and operational until the drainage area is stabilized.



GENERAL NOTES:

- The top of the sack gabions should be level and oriented perpendicular to the direction of flow.
- Filter fabric material shall be fastened to woven wire support.
- Filter fabric material should meet the following specifications:
  Resistant to ultraviolet light, Fabric should be non-woven geotextile with minimum weight of 3.5 ounces per square yard, minimum mullen burst strength of 200 pounds per square inch and a flow through rate of 120 gallons per minute per square foot of frontal area.
- Stone size: ±4"-8" open graded crushed limestone.
- Inspect weekly or after each rainfall event and repair or replace as needed
- When silt reaches a depth of 6 inches or more above natural ground, silt shall be removed and disposed in an approved manner that will not contribute to resiltation. Contaminated sediment must be removed and disposed of off-site in accordance with applicable regulations.
- Remove sack gabions after construction site is completely stabilized.

INSTALLATION:

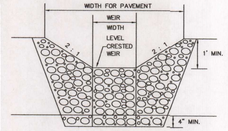
- Layout the perpendicular to flow direction.
- Clear the area of debris, rocks or plants that will interfere with installation.
- Place wire mesh and filter fabric on the ground along the proposed installation with enough overlap to completely encircle the finished size of the berm.
- Place the rock along the center of the woven wire mesh taking care not to damage the filter fabric.
- Wrap the structure with the previously placed woven wire mesh secure enough so that when walked across the structure retains it's shape.
- Secure with tie wire.

MATERIALS:

- Synthetic filter fabric should contain ultraviolet ray inhibitors and stabilizers to provide a minimum of 70% strength retained after 500 hours.
- Burlap of 10 ounces per square yard of fabric may also be used.
- The filter fabric should be purchased in continuous rolls to minimize joints.
- Woven wire support sheathing shall be a minimum 20 gauge with 1 inch openings.

MAINTENANCE:

- Inspect regularly and after every storm. Make any repairs necessary to ensure the sack gabions are in good working order.
- Sediment should be removed and the structure restored to its original dimensions when sediment has accumulated to a depth of 6".
- Clean or remove and replace the stone filter or filter fabric if they become clogged.
- Sack Gabions should remain in place and operational until the drainage area is stabilized.



FILTER DAM AT TOE OF SLOPE

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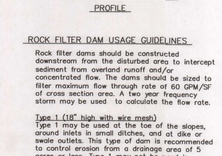


ROCK FILTER DAM USAGE GUIDELINES

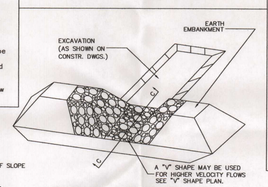
Rock filter dams should be constructed downstream from the disturbed area to intercept sediment from overland runoff and/or concentrated flow. The dams should be sized to filter maximum flow through rate of 60 GPM/SF of cross section area. A two year frequency storm may be used to calculate the flow rate.

Type 1 (18" high with wire mesh)
Type 1 may be used at the toe of the slopes, around inlets in small ditches, and at dike or swale outlets. This type of dam is recommended to control erosion from a drainage area of 5 acres or less. Type 1 may not be used in concentrated, high velocity flows (approx. 8 fps or more) in which aggregate erosion may occur. Sandbags may be used at embedded foundation (4" deep min.) for better filtering efficiency of low flows id called for on the plans or directed by the Engineer.

Type 2 (18" high with wire mesh)
Type 2 may be used in ditches or swale outlets.

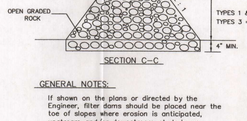
Type 3 (36" high with wire mesh)
Type 3 may be used in stream flow and should be secured in the stream bed.

Type 4 (Sack Gabions)
Type 4 may be used in ditches and in smaller channels to form and erosion control dam.



FILTER DAM AT SEDIMENT TRAP

N.T.S.



SECTION C-C

GENERAL NOTES:

If shown on the plans or directed by the Engineer, filter dams should be placed near the toe of slopes where erosion is anticipated, upstream and/or downstream at drainage structures, and in roadway ditches and channels to collect sediment.

Materials (aggregate, wire mesh, sandbags, etc.,) shall be as indicated by specification for rock filter dams for erosion and sediment control.

Throck filter dimensions shall be as indicated on the SW3P plans.

Side slopes should be 2:1 or flatter. Dams within the safety zone shall have side slopes of 6:1 or flatter.

Maintain a minimum of 1 ft. between top of rock filter dam weir and top of embankment for filter dams at sediment traps.

Filter dams should be embedded a minimum of 4 inches into existing ground.

The sediment trap for ponding of sediment laden runoff shall be of the dimensions shown on the plans.

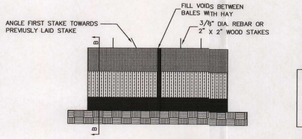
Rock filter dams types 2 & 3 shall be secure with 20 gauge galvanized woven wire mesh with 1" diameter hexagonal openings. The aggregate shall be placed on the mesh to the heights and slopes and specified. The aggregate and tightly secured to itself on the downstream side using wire ties or hog rings. The mesh should be secured or staked to the stream bed prior to aggregate placement.

Sack gabions should be staked down with 3/4" dia. rebar stakes.

Flow outlet should be onto a stabilized area (vegetation, rock, etc.)

GENERAL NOTES

1. Do not disturb vegetated areas (trees, grass, weeds, brush, etc.) any more than necessary for construction.
2. Construction entrance/exit location and concrete washout pit to be determined in the field.
3. Storm Water Pollution Prevention Controls may need to be modified in the field to accomplish the desired effect.
4. Restrict entry/exit to the project site to designated locations by use of adequate fencing, if necessary.
5. All Storm Water Pollution Prevention Controls are to be maintained and in working conditions at all times.
6. Storm water pollution prevention structures should be constructed within the site boundaries.
7. As soon as practical, all disturbed soil that will not be covered by impervious cover such as house slab, sidewalks, and driveway will be stabilized.
8. This is a performance based plan. Actual field conditions may require different placement of erosion control measures. Contractor will be responsible for proper placement of erosion control devices to prevent contamination from leaving the construction site.



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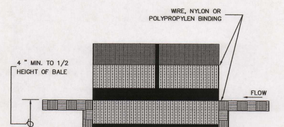
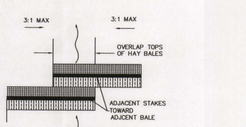
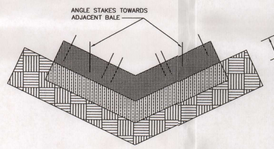






GENERAL NOTES:

Hay bales shall be a minimum of 30" in length and weigh a minimum of 50 pounds.

Hay bales shall be bound by either wire or nylon or polypropylene string. The bales shall be composed entirely of vegetable matter.

Hay bales shall be embedded in soil a minimum of 4" and where possible 1/2 the height of the bale.

Hay bales shall be placed in a row with ends tightly abutting adjacent bales. The bales shall be placed with bindings parallel to the ground.

Hay bales shall be securely anchored in placed with 3/8" dia. rebar or 2" x 2" wood stakes driven throught the bales. The first stake shall be angled towards the previously laid bale to fence the bales together.

BALED HAY USAGE GUIDELINES

A baled hay installation may be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A two year storm frequency may be used to calculate the flow rate to be filtered. The installation should be sized to filter the maximum flow thru rate of 5 GPM/sf of cross sectional area. Baled hay may be used in the following locations.

Where the runoff approaching the baled hay the slope of the disturbed soil shall not exceed 10% and the length of the slope upstream of the hay bale should be less than 50'.

Where the installation will be required for less than three months.

Where the contributing drainage area is less than 1/2 acre.

For baled hay installations in small ditches, the additional following considerations apply.

The ditch side slopes shall be graded as flow as possible to maximize the drainage flow rate thru the hay.

The ditch shall be graded large enough to contain overlapping drainage when sediment has filled to the top of the baled hay.

Bales should be replaced usually every 2 monthes or more often during wet weather when loss of sturctural integrity is accerated.

TORRES ENGINEERING P.C.
TBPE FIRM # F-13692
5503 GRISSOM RD, STE. 101 (210) 680-0808
SAN ANTONIO, TEXAS 78238

DATE: OCT. 14, 2014
DESIGNED BY:
DRAWN BY:
CHECKED BY:
SCALE: 1" = 20'
FILE NAME:

NO.	DATE	DESCRIPTION	BY
REVISIONS			

SEDIMENTAION DETAIL PLANS FOR BULVERDE RETAIL CENTER

2925 BULVERDE RD
BULVERDE, TEXAS

SEDIMENTATION

SHEET 7 OF 9

SITE DESCRIPTION

PROJECT: BULVERDE RETAIL CENTER
A PROPOSED COMMERCIAL DEVELOPMENT LOCATED IN THE CITY OF BULVERDE, LOCATED AT 2925 BULVERDE RD.

PROJECT DESCRIPTION: THE CONSTRUCTION OF ALL BUILDINGS, PARKING LOTS, AND UTILITY FACILITIES NECESSARY FOR THE DEVELOPMENT OF A COMMERCIAL LOT.

MAJOR SOIL DISTURBING ACTIVITIES: ACTIVITIES ASSOCIATED WITH PARKING LOT PAVING, UTILITY CONSTRUCTION–TRENCHING, STOCKPILING SPOILS AND EXCAVATION.

TOTAL PROJECT AREA: ± 1.978 ACRES

TOTAL AREA TO BE DISTURBED: ± 1.55 ACRES

WEIGHTED RUNOFF COEFFICIENT (AFTER CONSTRUCTION): 0.52

EXISTING CONDITION OF SOIL & VEGETATIVE COVER AND % OF EXISTING VEGETATIVE COVER: THE SOIL TYPE(S) ON SITE ARE AS FOLLOWS:

0–1 FT DEPTH IS FAT CLAY
1 – 30 FT DEPTH IS LIMESTONE

NAME OF RECEIVING WATERS: THE SUBDIVISION GENERALLY DRAINS IN A SOUTHEAST DIRECTION AND ENTERS A NATURAL SWALE IN TXDOT RIGHT OF WAY

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES:

- ____ TEMPORARY SEEDING
- _X_ PERMANENT PLANTING, SODDING, OR SEEDING
- ____ MULCHING
- _X_ SOIL RETENTION BLANKET
- ____ BUFFER ZONES
- _X_ PRESERVATIVE OF NATURAL RESOURCES

OTHER:

STRUCTURAL PRACTICES:

- _X_ SILT FENCES
- ____ HAY BALES
- _X_ ROCK BERMS
- ____ DIVERSION , INTERCEPTOR, OR PERIMETER DIKES
- ____ DIVERSION , INTERCEPTOR, OR PERIMETER SWALES
- ____ DIVERSION DIKE AND SWALE COMBINATIONS
- ____ PIPE SLOPE DRAINS
- ____ PAVED FLUMES
- _X_ ROCK BEDDING AT CONSTRUCTION EXIT
- ____ TIMBER MATTING AT CONSTRUCTION EXIT
- ____ CHANNEL LINERS
- ____ SEDIMENT TRAPS
- ____ SEDIMENT BASINS
- ____ STORM INLET SEDIMENT TRAP
- ____ STONE OUTLET STRUCTURES
- ____ CURBS AND GUTTERS
- _X_ STORM SEWERS
- ____ VELOCITY CONTROL DEVICES

OTHER:

NARRATIVE – SEQUENCE OF CONSTRUCTION (STORM WATER MANAGEMENT) ACTIVITIES: STRUCTURAL PRACTICES, AS APPLICABLE , WILL BE INSTALLED PRIOR TO EACH PHASE OF THE PROJECT AND MAINTAINED DURING THE CONSTRUCTION OF THAT PHASE. SOIL STABILIZATION PRACTICES WILL CLOSELY FOLLOW COMPLETION AND ACCEPTANCE OF CONSTRUCTION FOR EACH PROJECT PHASE.

STORM WATER MANAGEMENT: THE CONTRACTOR WILL INSTALL AND MAINTAIN SEDIMENTATION AND EROSION CONTROL MEASURES AS SPECIFIED IN THE STORM WATER POLLUTION PREVENTION PLAN, TEMPORARY SEDIMENTATION & EROSION CONTROL PLAN, AND AS DIRECTED BY AUTHORIZED OFFICIALS.

CONTRACTOR TO PLACE EXCAVATED MATERIAL ON THE HIGH SIDE OF THE TRENCH.

OTHER EROSION AND SEDIMENT CONTROLS:

MAINTENANCE: ALL EROSION AND SEDIMENT CONTROLS WILL BE MAINTAINED IN GOOD WORKING ORDER. IF A REPAIR IS NECESSARY, IT WILL BE DONE AT THE EARLIEST DATE POSSIBLE, BUT NO LATER THAN 7 CALENDAR DAYS AFTER THE SURROUNDING EXPOSED GROUND HAS DRIED SUFFICIENTLY TO PREVENT FURTHER DAMAGE FROM HEAVY EQUIPMENT.

INSPECTION: AN INSPECTION WILL BE PERFORMED BY THE CONTRACTOR EVERY 2 WEEKS AS WELL AS AFTER EVERY HALF INCH OR MORE OF RAIN (AS RECORDED ON A NON–FREEZING RAIN GAUGE TO BE LOCATED AT THE PROJECT SITE). THE CONTROLS WILL BE REVISED AS NECESSARY.

WASTE MATERIALS: ALL WASTE MATERIAL WILL BE COLLECTED AND STORED IN A METAL DUMPSTER . THE DUMPSTER WILL MEET ALL STATE AND LOCAL CITY SOLID WASTE MANAGEMENT REGULATIONS. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE WILL BE DEPOSITED IN THE DUMPSTER. THE DUMPSTER WILL BE EMPTIED AS NECESSARY OR AS REQUIRED BY LOCAL REGULATION, AND THE TRASH WILL BE HAULED TO A LOCAL DUMP. NO CONSTRUCTION WASTE MATERIAL WILL BE BURIED ON SITE.

HAZARDOUS WASTE (INCLUDING SPILL REPORTING): AT A MINIMUM, ANY PRODUCTS IN THE FOLLOWING CATEGORIES ARE CONSIDERED TO BE HAZARDOUS: PAINTS, ACIDS FOR CLEANING MASONRY SURFACES, CLEANING SOLVENTS, ASPHALT PRODUCTS, CHEMICAL ADDITIVES FOR SOIL STABILIZATION, OR CONCRETE CURING COMPOUNDS AND ADDITIVES. IN THE EVENT OF A SPILL WHICH MAY BE HAZARDOUS, THE SPILL COORDINATOR SHOULD BE CONTACTED IMMEDIATELY.

SANITARY WASTE: NO PORTABLE UNITS WILL BE LOCATED ONSITE.

OFFSITE VEHICLE TRACKING:

- ____ HAUL ROADS DAMPENED FOR DUST CONTROL
- ____ LOADED HAUL TRUCKS TO BE COVERED WITH TARPAULIN
- ____ EXCESS DIRT ON ROAD REMOVED DAILY
- _X_ STABILIZED CONSTRUCTION ENTRANCE

OTHER:

REMARKS:

OWNER'S CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my supervision in accordance with system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information 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.

_____ _____
DATE

CONTRACTOR'S CERTIFICATION

I certify under penalty of law that I understand the terms and conditions of the general Texas Pollutant Discharge Elimination System (TPDES) permit that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification plan.

_____ _____
SIGNATURE (CONTRACTOR) DATE

TORRES ENGINEERING P.C.
TBPE FIRM # P-13982
9151 BRASWELL
SAN ANTONIO, TEXAS 78254
(210) 634-4123

DATE: MAY 2, 2013
DESIGNED BY: X.A.T.
DRAWN BY: G.I.S.
CHECKED BY: R.A.
SCALE: 1" 50'
FILE NAME:

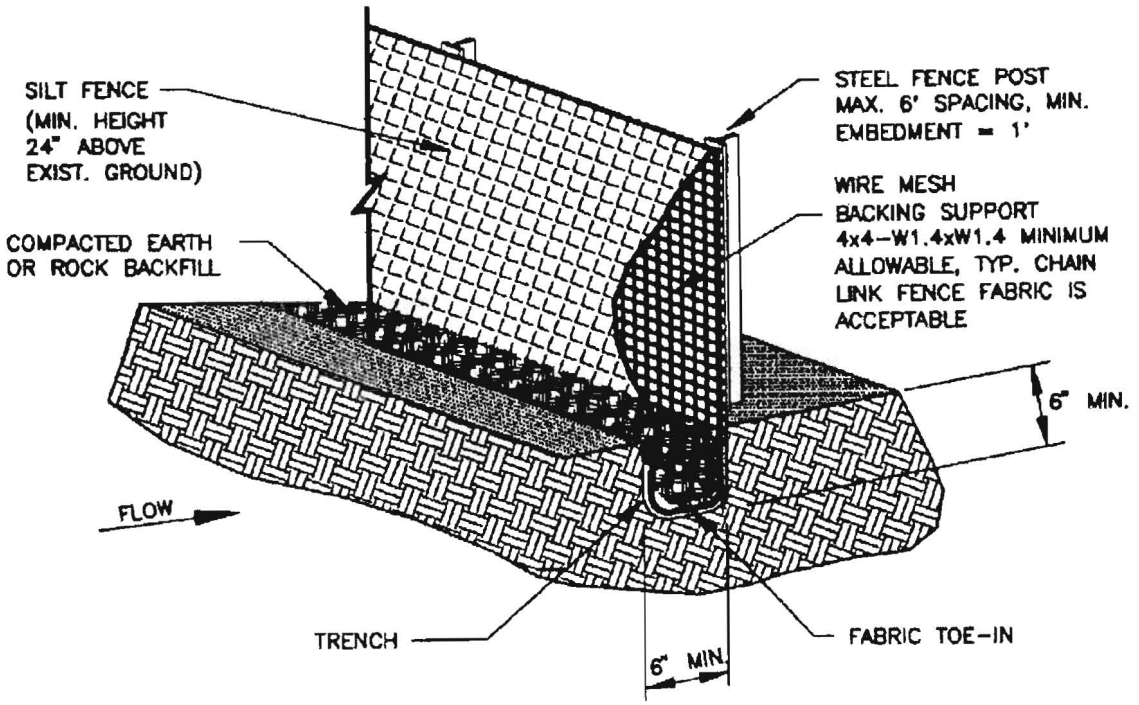
REVISIONS

NO.	DATE	DESCRIPTION	BY

SEDIMENTATION PLANS
FOR BULVERDE RETAIL CENTER
2925 BULVERDE RD
BULVERDE, TEXAS

SEDIMENTATION

B. SILT FENCE (Exhibit 2)



SILT FENCE

A silt fence is a barrier consisting of geotextile fabric supported by metal posts to prevent soil and sediment loss from a site. When properly used, silt fences can be highly effective at controlling sediment from disturbed areas. They cause runoff to pond, allowing heavier solids to settle out. If not properly installed, silt fences are not likely to be effective.

The purpose of a silt fence is to intercept and detain water-borne sediment from unprotected areas of a limited extent. Silt fence is used during the period of construction near the perimeter of a disturbed area to intercept sediment while allowing water to percolate through. This fence should remain in place until the disturbed area is permanently stabilized. Silt fence should not be used where there is a concentration of water in a channel or drainage way. If concentrated flow occurs after installation, corrective action must be taken such as placing a rock berm in the areas of concentrated flow.

Silt fencing within the site may be temporarily moved during the day to allow construction activity provided it is replaced and properly anchored to the ground at the end of the day. Silt fences on the perimeter of the site or around drainage ways should not be moved at any time.

Materials:

(1) Silt fence material should be polypropylene, polyethylene or polyamide woven or nonwoven fabric. The fabric width should be 36 inches, with a minimum unit weight of 4.5 oz/yd, mullen burst strength exceeding 190 lb/in2, ultraviolet stability exceeding 70%, and minimum apparent opening size of U.S. Sieve No. 30.

(2) Fence posts should be made of hot rolled steel, at least 4 feet long with Tee or Y-bar cross section, surface painted or galvanized, minimum nominal weight 1.25 lb/ft2, and Brindell hardness exceeding 140.

(3) Woven wire backing to support the fabric should be galvanized 2" x 4" welded wire, 12 gauge minimum.

Installation:

(1) Steel posts, which support the silt fence, should be installed on a slight angle toward the anticipated runoff source. Post must be embedded a minimum of 1 foot deep and spaced not more than 8 feet on center. Where water concentrates, the maximum spacing should be 6 feet.

(2) Lay out fencing down-slope of disturbed area, following the contour as closely as possible. The fence should be sited so that the maximum drainage area is ¼ acre/100 feet of fence.

(3) The toe of the silt fence should be trenched in with a spade or mechanical trencher, so that the down-slope face of the trench is flat and perpendicular to the line of flow. Where fence cannot be trenched in (e.g., pavement or rock outcrop), weight fabric flap with 3 inches of pea gravel on uphill side to prevent flow from seeping under fence.

(4) The trench must be a minimum of 6 inches deep and 6 inches wide to allow for the silt fence fabric to be laid in the ground and backfilled with compacted material.

(5) Silt fence should be securely fastened to each steel support post or to woven wire, which is in turn attached to the steel fence post. There should be a 3-foot overlap, securely fastened where ends of fabric meet.

(6) Silt fence should be removed when the site is completely stabilized so as not to block or impede storm flow or drainage.

Common Trouble Points:

(1) Fence not installed along the contour causing water to concentrate and flow over the fence.

(2) Fabric not seated securely to ground (runoff passing under fence)

(3) Fence not installed perpendicular to flow line (runoff escaping around sides)

(4) Fence treating too large an area, or excessive channel flow (runoff overtops or collapses fence)

Inspection and Maintenance Guidelines:

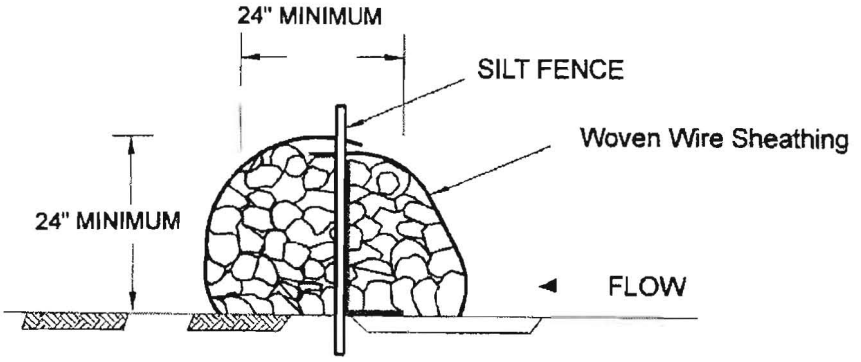
(1) Inspect all fencing weekly, and after any rainfall.

(2) Remove sediment when buildup reaches 6 inches, or install a second line of fencing parallel to the old fence.

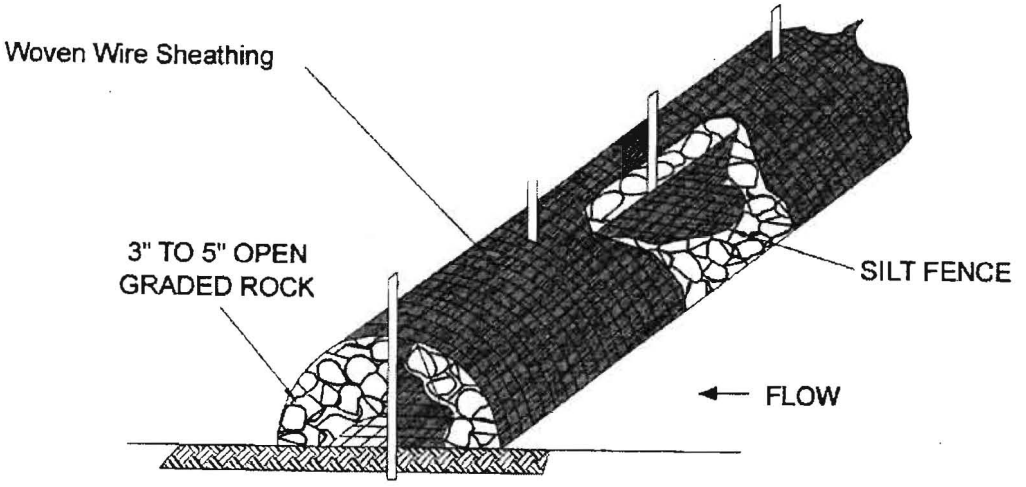
(3) Replace any torn fabric or install a second line of fencing parallel to the torn section.

(4) Replace or repair any sections crushed or collapsed in the course of construction activity. If a section of fence is obstructing vehicular access, consider relocating it to a spot where it will provide equal protection, but will not obstruct vehicles. A triangular filter dike may be preferable to a silt fence at common vehicle access points.

C. ROCK BERM WITH SILT FENCE (Exhibit 3)



Cross - Section



ROCK BERM WITH SILT FENCE

A high service rock berm should be designated in areas of important environmental significance such as in steep canyons or above permanent springs, pools, recharge features, or other environmentally sensitive areas that may require a higher level of protection. This type of sediment barrier combines the characteristics of a silt fence and a rock berm to provide a substantial level of sediment reduction and a sturdy enough barrier to withstand higher flows. The

drainage area to this device should not exceed 5 acres and the slope should be less than 30%.

Materials:

(1) Silt fence material should be polypropylene, polyethylene or polyamide woven or nonwoven fabric. The fabric width should be 36 inches, with a minimum unit weight of 4.5 oz/yd, mullen burst strength exceeding 190 lb/in2, ultraviolet stability exceeding 70%, and minimum apparent opening size of U.S. Sieve No. 30.

(2) Fence posts should be made of hot rolled steel, at least 4 feet long with Tee or Y-bar cross section, surface painted or galvanized, minimum nominal weight 1.25 lb/ft2, and Brindell hardness exceeding 140. Rebar (either #5 or #6) may also be used to anchor the berm.

(3) Woven wire backing to support the fabric should be galvanized 2" x 4" welded wire, 12 gauge minimum.

(4) The berm structure should be secured with a woven wire sheathing having maximum opening of 1 inch and a minimum wire diameter of 20 gauge galvanized and should be secured with shoat rings.

(5) Clean, open graded 3- to 5-inch diameter rock should be used, except in areas where high velocities or large volumes of flow are expected, where 5- to 8-inch diameter rocks may be used.

Installation:

(1) Lay out the woven wire sheathing perpendicular to the flow line. The sheathing should be 20 gauge woven wire mesh with 1-inch openings.

(2) Install the silt fence along the center of the proposed berm placement, as with a normal silt fence described in Section 2.4.3.

(3) Place the rock along the sheathing on both sides of the silt fence as shown in the diagram (Figure 1.30), to a height not less than 24 inches. Clean, open graded 3-5" diameter rock should be used, except in areas where

high velocities or large volumes of flow are expected, where 5- to 8-inch diameter rock may be used.

(4) Wrap the wire sheathing around the rock and secure with tie wire so that the ends of the sheathing overlap at least 2 inches, and the berm retains its shape when walked upon.

(5) The high service rock berm should be removed when the site is revegetated or otherwise stabilized or it may remain in place as a permanent BMP if drainage is adequate.

Common Trouble Points:

(1) Insufficient berm height or length (runoff quickly escapes over top or around sides of berm).

(2) Berm not installed perpendicular to flow line (runoff escaping around one side).

(3) Internal silt fence not anchored securely to ground (high flows displacing berm).

(4) When installed in streambeds, they often result in diversion scour, so their use in this setting is not recommended.

Inspection and Maintenance Guidelines:

(1) Inspection should be made weekly and after each rainfall by the responsible party. For installations in streambeds, additional daily inspections should be made on rock berm.

(2) Remove sediment and other debris when buildup reaches 6 inches and dispose of the accumulated silt of in an approved manner.

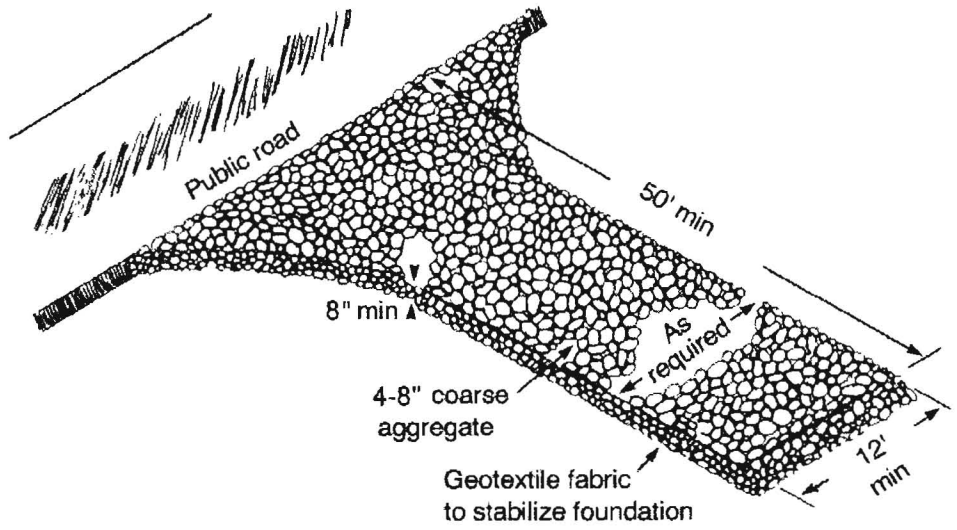
(3) Repair any loose wire sheathing.

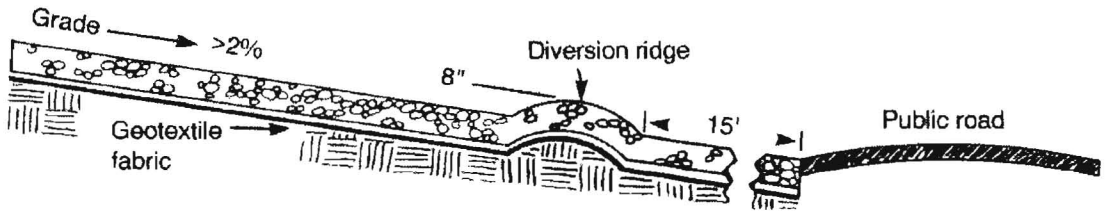
(4) The berm should be reshaped as needed during inspection.

(5) The berm should be replaced when the structure ceases to function as intended due to silt accumulation among the rocks, washout, construction traffic damage, etc.

(6) The rock berm should be left in place until all upstream areas are stabilized and accumulated silt removed.

D. CONSRTUCTION ENTRANCE / EXIT (Exhibit 4)





CONSTRUCTION ENTRANCE/EXIT

The purpose of a temporary gravel construction entrance is to provide a stable entrance/exit condition from the construction site and keep mud and sediment off public roads. A stabilized construction entrance is a stabilized pad of crushed stone located at any point traffic will be entering or leaving the construction site from a public right-ofway, street, alley, sidewalk or parking area. The purpose of a stabilized construction entrance is to reduce or eliminate the tracking or flowing of sediment onto public rightsof- way. This practice should be used at all points of construction ingress and egress.

Excessive amounts of mud can also present a safety hazard to roadway users. To minimize the amount of sediment loss to nearby roads, access to the construction site should be limited to as few points as possible and vegetation around the perimeter should be protected were access is not necessary. A rock stabilized construction entrance should be used at all designated access points.

Materials:

(1) The aggregate should consist of 4 to 8 inch washed stone over a stable foundation as specified in the plan.

(2) The aggregate should be placed with a minimum thickness of 8 inches.

(3) The geotextile fabric should be designed specifically for use as a soil filtration media with an approximate weight of 6 oz/yd2, a mullen burst rating of 140 lb/in2, and an equivalent opening size greater than a number 50 sieve.

(4) If a washing facility is required, a level area with a minimum of 4 inch washed stone or commercial rack should be included in the plans. Divert wastewater to a sediment trap or basin.

Installation

(1) Avoid curves on public roads and steep slopes. Remove vegetation and other objectionable material from the foundation area. Grade crown foundation for positive drainage.

(2) The minimum width of the entrance/exit should be 12 feet or the full width of exit roadway, whichever is greater.

(3) The construction entrance should be at least 50 feet long.

(4) If the slope toward the road exceeds 2%, construct a ridge, 6 to 8 inches high with 3:1 (H:V) side slopes, across the foundation approximately 15 feet from the entrance to divert runoff away from the public road.

(5) Place geotextile fabric and grade foundation to improve stability, especially where wet conditions are anticipated.

(6) Place stone to dimensions and grade shown on plans. Leave surface smooth and slope for drainage.

(7) Divert all surface runoff and drainage from the stone pad to a sediment trap or basin.

(8) Install pipe under pad as needed to maintain proper public road drainage.

Common trouble points

(1) Inadequate runoff control – sediment washes onto public road.

(2) Stone to small or geotextile fabric absent, results in muddy condition as stone is pressed into soil.

(3) Pad too short for heavy construction traffic – extend pad beyond the minimum 50 foot length as necessary.

(4) Pad not flared sufficiently at road surface, results in mud being tracked on to road and possible damage to road edge.

(5) Unstable foundation – use geotextile fabric under pad and/or improve foundation drainage.

Inspection and Maintenance Guidelines:

(1) The entrance should be maintained in a condition, which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment.

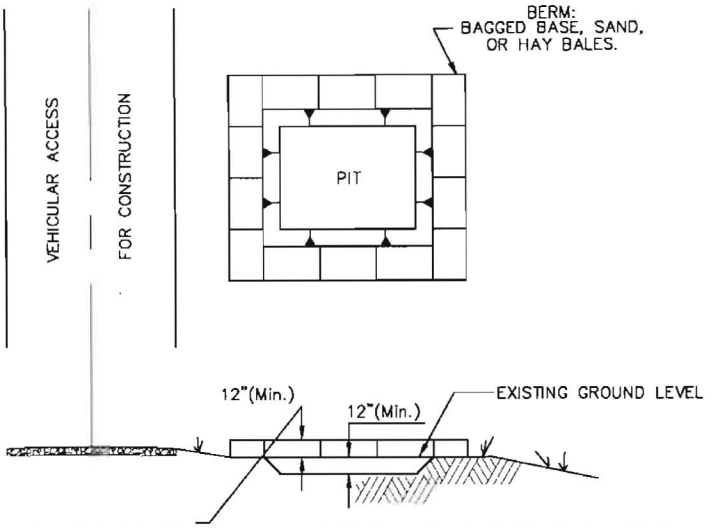
(2) All sediment spilled, dropped, washed or tracked on to public rights-of way should be removed immediately by contractor.

(3) When necessary, wheels should be cleaned to remove sediment prior to entrance onto public right-of-way.

(4) When washing is required, it should be done on an area stabilized with crushed stone that drains into an approved sediment trap or sediment basin.

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

E. CONCRETE WASHOUT (Exhibit 5)



CONCRETE TRUCK WASHOUT PIT

Notes:

(1) The detail above illustrates minimum dimensions. The pit can be increased in size depending on expected frequency of use.

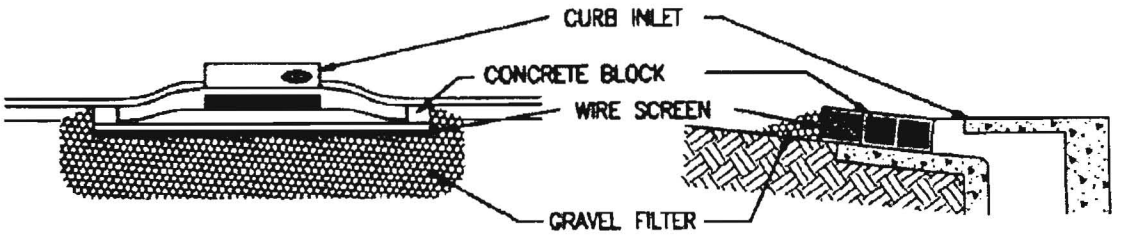
(2) If hay bales are used for berm, they shall be anchored in place with two rebars per bale, driven into the ground for enough to provide reasonable stability.

(3) Washout Pit shall be located in an area easily accessible to construction traffic

(4) Washout Pit shall not be located in an are subject to inundation from storm water runoff.

(5) Pit shall not be located over or in the immediate vicinity of a feature of groundwater recharge.

F. CURB INLET PROTECTION (Exhibit 6)



CURB INLET PROTECTION

Storm sewers that are made operational prior to stabilization of the associated drainage areas can convey large amounts of sediment to natural drainage ways. In case of extreme sediment loading, the storm sewer itself may clog and lose a major portion of its capacity. To avoid these problems, it is necessary to prevent sediment from entering the system at the inlets. The following guidelines for inlet protection are based primarily on recommendations by the Virginia Dept. of Conservation and Recreation (1992) and the North Central Texas Council of Governments (NCTCOG, 1993b).

In developments for which drainage is to be conveyed by underground storm sewers (i.e., streets with curbs and gutters), all inlets that may receive storm runoff from disturbed areas should be protected. Temporary inlet protection is a series of different measures that provide protection against silt transport or accumulation in storm sewer systems. This clogging can greatly reduce or completely stop the flow in the pipes. The different measures are used for different site conditions and inlet types.

Care should be taken when choosing a specific type of inlet protection. Field experience has shown that inlet protection that causes excessive ponding in an area of high construction activity may become so inconvenient that it is removed or bypassed, thus transmitting sediment-laden flows unchecked. In such situations, a structure with an adequate overflow mechanism should be utilized.

It should also be noted that inlet protection devices are designed to be installed on construction sites and not on streets and roads open to the public. When used on public streets these devices will cause ponding of runoff, which can cause minor flooding and can present a traffic hazard. An example of appropriate siting would be a new subdivision where the storm drain system is installed before the area is stabilized and the streets open to the general public. When construction occurs adjacent to active streets, the sediment should be controlled on site and not on public thoroughfares. Occasionally, roadwork or utility installation will occur on public roads. In these cases, inlet protection is an appropriate temporary BMP.

The following inlet protection devices are for drainage areas of one acre or less. Runoff from larger disturbed areas should be routed to a temporary sediment trap or basin.
Filter barrier protection using silt fence is appropriate when the drainage area is less than one acre and the basin slope is less than five percent. This type of protection is not applicable in paved areas. A variation of this measure uses straw bales in lieu of filter fabric. This variation is only good for very short-term protection and is not to be used when flows exceed 0.25 cubic feet per second to the inlet.

Block and gravel protection is used when flows exceed 0.5 cubic feet per second and it is necessary to allow for overtopping to prevent flooding. This form of protection is also useful for curb type inlets as it works well in paved areas.
Wire mesh and gravel protection is used when flows exceed 0.5 cubic feet per second and construction traffic may occur over the inlet. This form of protection may be used with both curb and drop inlets.

Excavated impoundment protection around a drop inlet may be used for protection against sediment entering a storm drain inlet. With this method, it is necessary to install weep holes to allow the impoundment to drain completely. If this measure is implemented, the impoundment should be sized such that the volume of excavation is 3,600 cubic feet per acre of disturbed area entering the inlet.

Materials:

(1) Filter fabric should be nylon reinforced polypropylene fabric, which meets the following minimum criteria: Tensile Strength, 90 lbs.; Puncture Rating, 60 lbs.; Mullen Burst Rating, 280 psi; Apparent Opening Size, U.S. Sieve No. 70.

(2) Posts for fabric should be 2" x 4" pressure treated wood stakes or galvanized steel, tubular in cross-section or they may be standard fence "T" posts.

(3) Concrete blocks should be standard 8" x 8" x 16" concrete masonry units.

(4) Wire mesh should be standard hardware cloth or comparable wire mesh with an opening size not to exceed 1/2 inch.

Guidelines for installation:

(1) Two concrete blocks should be placed on their sides abutting the curb at either side of the inlet opening.

(2) A 2-inch x 4-inch stud should be cut and placed through the outer holes of each spacer block to help keep the front blocks in place.

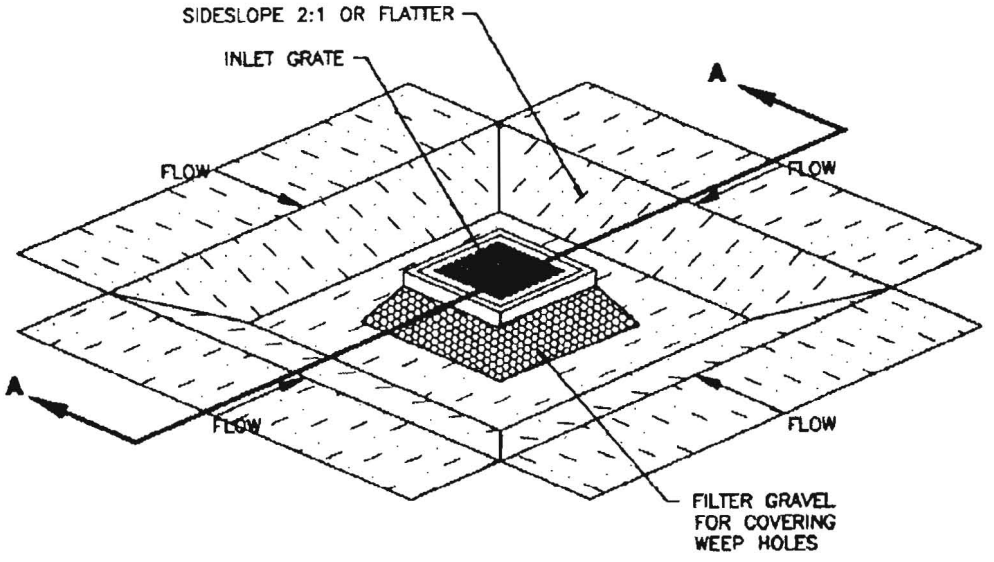
(3) Concrete blocks should be placed on their sides across the front of the inlet and abutting the spacer blocks as depicted in Figure 1.36.

(4) Wire mesh should be placed over the outside vertical face (webbing) of the concrete blocks to prevent stone from being washed through the holes in the blocks. Wire mesh with 1/2-inch openings should be used.

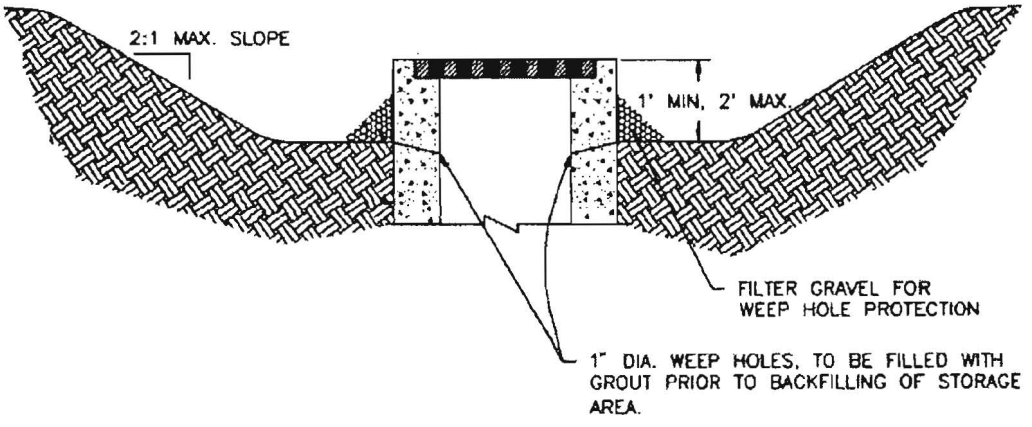
(5) Coarse aggregate should be piled against the wire to the top of the barrier as shown in Figure 1.36.

(6) If the stone filter becomes clogged with sediment so that it no longer adequately performs its function, the stone must be pulled away from the blocks, cleaned and/or replaced.

G. EXCAVATED DROP INLET PROTECTION (Exhibit 7)



ISOMETRIC PLAN VIEW
N.T.S.



SECTION A-A
N.T.S.

EXCAVATED DROP INLET PROTECTION

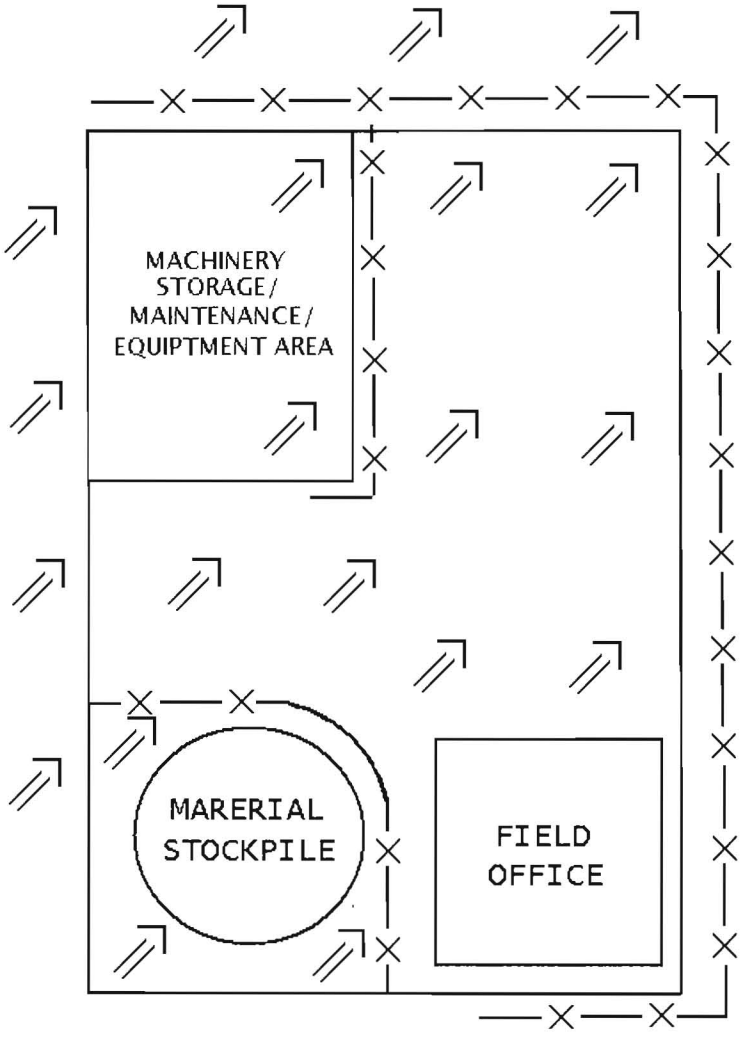
(1) The excavated trap should be sized to provide a minimum storage capacity calculated at 3,600 cubic feet per acre of drainage area. A trap should be no less than 1-foot nor more than 2-feet deep measured from the top of the

inlet structure. Side slopes should not be steeper than 2:1

(2) The slope of the basin may vary to fit the drainage area and terrain. Observations must be made to check trap efficiency and modifications should be made as necessary to ensure satisfactory trapping of sediment. Where an inlet is located so as to receive concentrated flows, such as in a highway median, it is recommended that the basin have a rectangular shape in a 2:1 (length/width) ratio, with the length oriented in the direction of the flow.

(3) Sediment should be removed and the trap restored to its original dimensions when the sediment has accumulated to one-half the design depth of the trap. Removed sediment should be deposited in a suitable area and in a manner such that it will not erode.

H. CONSTRUCTION STAGING AREA (Exhibit 8)



TYPICAL CONSTRUCTION
STAGING AREA

FORMS

1. **PROJECT MILESTONES DATES (Exhibit 9)**
2. **ON-SITE MATERIALS LIST (Exhibit 10)**
3. **RESPONSIBLE PARTY FORM (Exhibit 11)**
4. **PLAN IMPLEMENTATION CHECKLIST (Exhibit 12)**

PROJECT MILESTONE DATES (Exhibit 9)

Date when major site grading activities begin:

Construction Activity	Date
Site Grading	
Street Grading	
Off-Site Borrow	
Off-Site Fill	
Off-Site Excess Haul Off	

Dates when construction activities temporarily or permanently cease on all or a portion of the project:

Construction Activity	Date

Dates when stabilization measures are initiated:

Stabilization Activity	Date

ON-SITE MATERIALS LIST (Exhibit 10)

List of construction and waste materials to be stored on-site. This list is to be current and updated. (Examples: topsoil, gravel, sand, base, excess material to be hauled off, demolition or construction waste, bulk chemicals, fuel, lubricants, etc.)

RESPONSIBLE PARTY FORM (Exhibit 11)

Pollution Prevention Measure	Responsible Party Name and phone Number									
General										
Revegitation										
Erosion/sediment controls										
Vehicle exits										
Material areas										
Equipment areas										
Concrete rinse										
Construction debris										
Trash receptacles										
Inspections										
Infrastructure										
Roadway clearing										
Utility clearing										
Roadway grading										
Utility construction										
Drainage construction										
Roadway base										
Roadway surfaces										
Site cleanups										
Building										
Clearing for building										
Foundation grading										
Utility construction										
Foundation construction										
Building construction										
Site grading										
Site cleanup										

Identify responsible parties and indicate responsible party for each pollution prevention

PLAN IMPLEMENTATION CHECKLIST (Exhibit 12)

At least two (2) days prior to start of construction, the owner/operator must submit a Storm Water NPDES General Permit of Intent (NOI) through the EPA's website

1. Post signed copy of NOI and completed Posting Notice in prominent place for public viewing (i.e., along side of a building permit). A copy of Storm Water Pollution Prevention Plan is to be kept on the construction site.

2. Submit a copy of the NOI – Form 3510-9 by Certified Mail – Return Receipt Requested to:
   NPDES Coordinator
   San Antonio Water System (MS4)
   1001 E. Market Street
   P.O. Box 2449
   San Antonio, Texas 78298

3. The owner/operator should have the contractor and all appropriate subcontractors sign and submit an NOI by certified mail – Return Receipt Requested to:
   Storm Water Notice of Intent (4203)
   401 M. Street S.W.
   Washington, D.C. 20460

   NOTE: When an additional responsible party submits an NOI for a site when a pre-existing NPEDS permit, the NOI for the additional responsible party must indicate the number for the pre-existing NPEDS permit.

4. The owner/operator, contractor, and all appropriate subcontractors (all parties that submit a NOI) must sign the SWPPP Certification form.

5. All Notices of Intent, Notices of Termination, storm water pollution prevention plans, reports, certifications, or information either submitted to the director, or the operator of a large or medium municipal separate storm sewer system, or that this permit requires be maintained by the permittee, shall be signed by a responsible corporate officer, by a general partner or proprietor, by a principal executive public officer, or by a ranking elected public official.

6. Owner/Operator should use "Responsible Party" Form (exhibit 10) to designate responsibility for pollution prevention measures.

7. Owner/Operator or general contractor shall designate qualified person(s) to conduct inspections and fill out Inspection Forms (copies provided in SWPPP).

8. Maintain plan (SWPPP) by posting changes (if any), copies of NOIs, NOTs, etc., in plan. File Inspection Forms is SWPPP and retain for a period of three years.

9. All responsible parties should initiate Notice of Termination (NOT) (copies in SWPPP) when their work has been completed and/or when the site has been stabilized, or when the operator of storm water discharges changes.

10. Any field changes should be noted on the appropriate and signed and dated by the responsible party.

Inspection Record

Pollution Prevention Measure	Inspected	Corrective Action	
		Description	Date Completed
General			
Revegitation			
Erosion/sediment controls			
Vehicle exits			
Material areas			
Equipment areas			
Concrete rinse			
Construction debris			
Trash receptacles			
Inspections			
Infrastructure			
Roadway clearing			
Utility clearing			
Roadway grading			
Utility construction			
Drainage construction			
Roadway base			
Roadway surfaces			
Site cleanups			
Building			
Clearing for building			
Foundation grading			
Utility construction			
Foundation construction			
Building construction			
Site grading			
Site cleanup			

By signing below , I certify that all items are acceptable and the project site is in compliance with SWPPP.

Inspector's Name	Inspector's Signature
Name of Owner/Operator (Firm)	Date

Note: Inspector is to attach a brief statement of his/her qualifications to this repo