

2016-20039

Qualified Watershed Protection Plan

Phase II

The View on the Square



Applicant Information:

Agent: Jacobs
 2705 Bee Caves Road, Suite 300
 Austin, TX 78746

Applicant: Jacobs
 2705 Bee Caves Road, Suite 300
 Austin, TX 78746

Property Owner: Tuttle Lumber Co., Ltd.
 228 S Guadalupe Street
 San Marcos, TX 78666

Notification: Notification not required

Subject Property:

Legal Description: 3.27 acre tract out of the JM Veramendi Survey, Abstract 17

Location: North bank of Purgatory Creek at Guadalupe Street

Existing Use of Property: Site not in use, Previously Tuttle Lumber yard

Zoning: Urban Center (T5)

Proposed Use of Property: Student Housing

Frontage On: Guadalupe Street

Area Zoning and Land Use Pattern:

Location	Current Zoning	Existing Land Use
N of Property	Urban Center (T5)	Commercial
W of Property	Single Family Residential, Mixed Use	Single family residential Auto mechanic and Wrecker Service
S of Property	Urban Center (T5), Civic Space	Commercial, Automotive repair, San Marcos Station
E of Property	Urban Center (T5)	Commercial

Engineering Analysis

The applicant is requesting approval of a Qualified Watershed Protection Plan Phase 2 (QWPP2) based upon reclamation of land within the Draft FEMA 100-year floodplain of Purgatory Creek. Proposed site fill is outside the effective current FEMA 100-year floodplain.

The site is currently not being used. There are several buildings located on the site (some have been removed recently) that were used during the operation of the Tuttle Lumber Company. Several of these existing buildings are also within the Draft FEMA 100-year floodplain.

The proposed building is the encroachment into the Draft FEMA 100-year floodplain. The footprint of the proposed building is in a similar location of the existing buildings. The development also includes increasing flood conveyance by increasing the width of a portion of the Purgatory Creek channel by 7.5-feet and lowering the top-of-bank by 1-foot for a width 22-feet. Channel improvements will not impact bottom of channel where possible Waters of the US may exist.

The development was required to meet all conditions of the new Flood Damage Prevention Ordinance.

The 1D hydraulic analysis of the existing conditions included all existing buildings that were in place in 2015 and allowed full flood conveyance through most of these buildings. This is a more conservative representation of the Draft FEMA 100-year floodplain during existing conditions.

The 1D hydraulic analysis of the proposed improvements included the proposed building and the proposed channel improvements. Three additional model cross sections were added to the existing conditions and proposed conditions models with a total of six model cross sections representing the proposed development. The 1D hydraulic analysis shows that the proposed improvements do not increase the 100-year water surface elevation.

The modeling shows an approximate average reduction of 0.4-inches adjacent to the site and for a distance of approximately 1000-feet upstream. The reduction eventually attenuates to 0 at approximately 4000-feet upstream of the site. Some flood reduction benefits are also seen downstream to LBJ Drive due to increased flow conveyance through the railroad and Guadalupe Bridges due to the channel widening.

The compensatory floodplain storage requirement has been met with the project. The removal of the existing buildings on site and the proposed channel widening provides additional storage for the site to meet the requirement.

The finished floor elevation has been set to 583.5-feet which is 2-feet above the Draft FEMA 100-year floodplain.

Existing site impervious cover is approximately 92% and the impervious cover for the proposed site is approximately 73%.

The Tuttle Lumber site was required to treat 1.10 acres of impervious cover to improve water quality for a previous permit. The proposed development will continue to treat 1.10 acres of impervious cover with a water quality BMP.

The project does impact the water quality zone. However, the amount of impervious cover within the water quality zone has been reduced and the Land Development Code allows existing impervious cover to be replaced within a water quality zone.

Stormwater detention is not required for the site since the amount of runoff from the site is reduced due the reduction of impervious cover.

Temporary erosion control measures shown to be implemented during construction appear adequate except for the following:

- Include note on the Erosion and Sedimentation Control Plan that specifies the revegetation of the excavated slope in a way that meets COSM revegetation standards and requires the installation of soil retention blanket per COSM soil retention blanket detail.
- Show silt fencing at the bottom of the excavated slope on the Erosion and Sedimentation Control Plan.

No portion of the tract is located within the Edwards Aquifer Recharge Zone.

Based upon the engineering review of this Qualified Watershed Protection Plan, Phase 2, it meets the applicable technical requirements of Chapter 5 of the Land Development Code, except for the temporary erosion control measure inadequacies noted above.

Staff provides this request to the Commission for your consideration and recommends approval with the condition that a revised set of plans are provided addressing the temporary erosion control plan inadequacies noted above.

Engineering Department Recommendation	
<input type="checkbox"/>	Approve as submitted
<input checked="" type="checkbox"/>	Approve with conditions or revisions as noted
<input type="checkbox"/>	Alternative - Postpone
<input type="checkbox"/>	Denial

The Commission’s Responsibility:

The Commission is required by law to hold a public hearing and receive public comment regarding the proposed Qualified Watershed Protection Plan. After considering the public input, the Commission, following the recommendation of the City Engineer, is charged with approving, conditionally approving or denying the request.

The following criteria shall be used to determine whether the application for a Watershed Protection Plan (Phase 1 and Phase 2, as applicable) shall be approved, approved with conditions, or denied:

(1) Other water quality zones - factors. Where land subject to the plan lies in whole or in part within a river or stream corridor water quality zone located outside the Edwards Aquifer recharge or transition zones:

- a. Whether the Watershed Protection Plan is consistent with approved legislative applications for the land subject to the plan;
- b. Whether the Watershed Protection Plan meets the standards in [Chapter 5](#), Article 1, and/or the specific criteria in [Chapter 5](#), Article 3;
- c. Whether any proposed mitigation plan offsets the impacts to water quality resulting from increased development within a buffer zone; and
- d. Whether the Watershed Protection Plan is consistent with proposed clustering or development transfers outside the plan area.

(2) Reclaimed land - factors. For developments where reclamation of land within the 100-year floodplain is proposed:

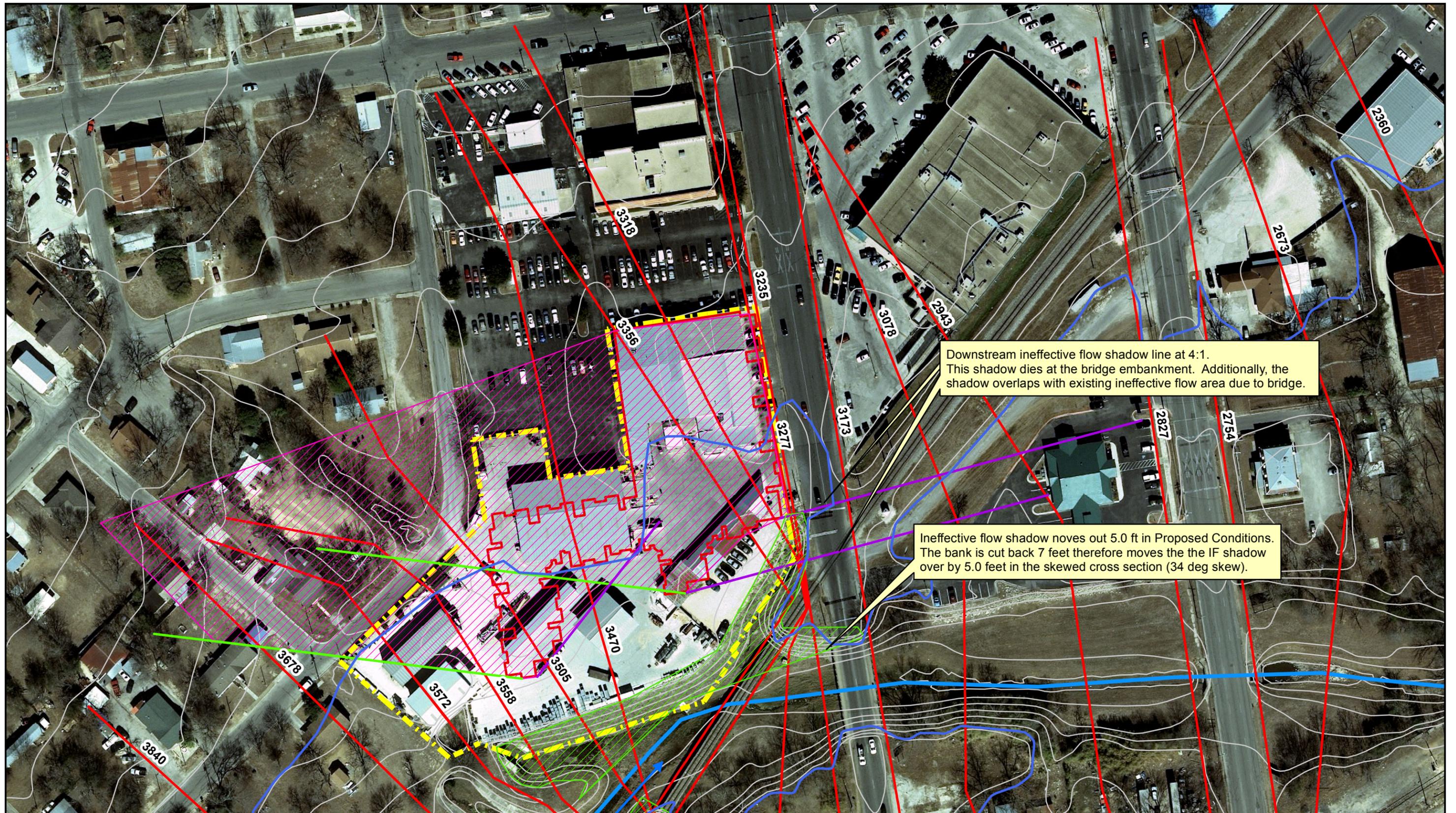
- a. Whether the Reclamation Concept Plan (which is an element of both phases of the Watershed Protection Plan when reclamation is proposed) is consistent with approved legislative applications for the land subject to the plan, including expressly any master drainage plan elements applicable to the land;
- b. Whether the Reclamation Concept Plan (which is an element of both phases of the Watershed Protection Plan when reclamation is proposed) meets the general standards in [Chapter 5](#), Article 1, and the specific criteria in [Chapter 5](#), Article 4, Division 2; and
- c. Whether any adverse impacts have been appropriately mitigated.

(3) Conditions. The Planning and Zoning Commission or the City Council on appeal may attach such conditions to approval of either phase of a Watershed Protection Plan as are necessary to assure that the Plan meets water quality standards, based on the recommendation of the Engineering Director, a qualified geologist, or a Texas-licensed professional engineer. Conditions may include a requirement to prepare or modify a mitigation plan.

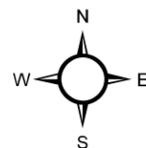
(4) No Watershed Protection Plan (Phase 1 or Phase 2, as applicable) shall be approved or approved with conditions unless proper documentation is submitted to the Director indicating that all applicable federal and state permits, approvals, and clearances have first been obtained.

Prepared by:

Gregory J. Schwarz, PE, LEED AP	Senior Engineer	1-4-17
Name	Title	Date



- Legend**
- Average Direction of Flow
 - Contraction (4:1)
 - Expansion (1:1)
 - HEC-RAS Cross Sections
 - Property Boundary
 - Ineffective Flow in Channel
 - Proposed Ineffective Flow Area
 - 100-Year Floodplain



EXCAVATION NOTES:

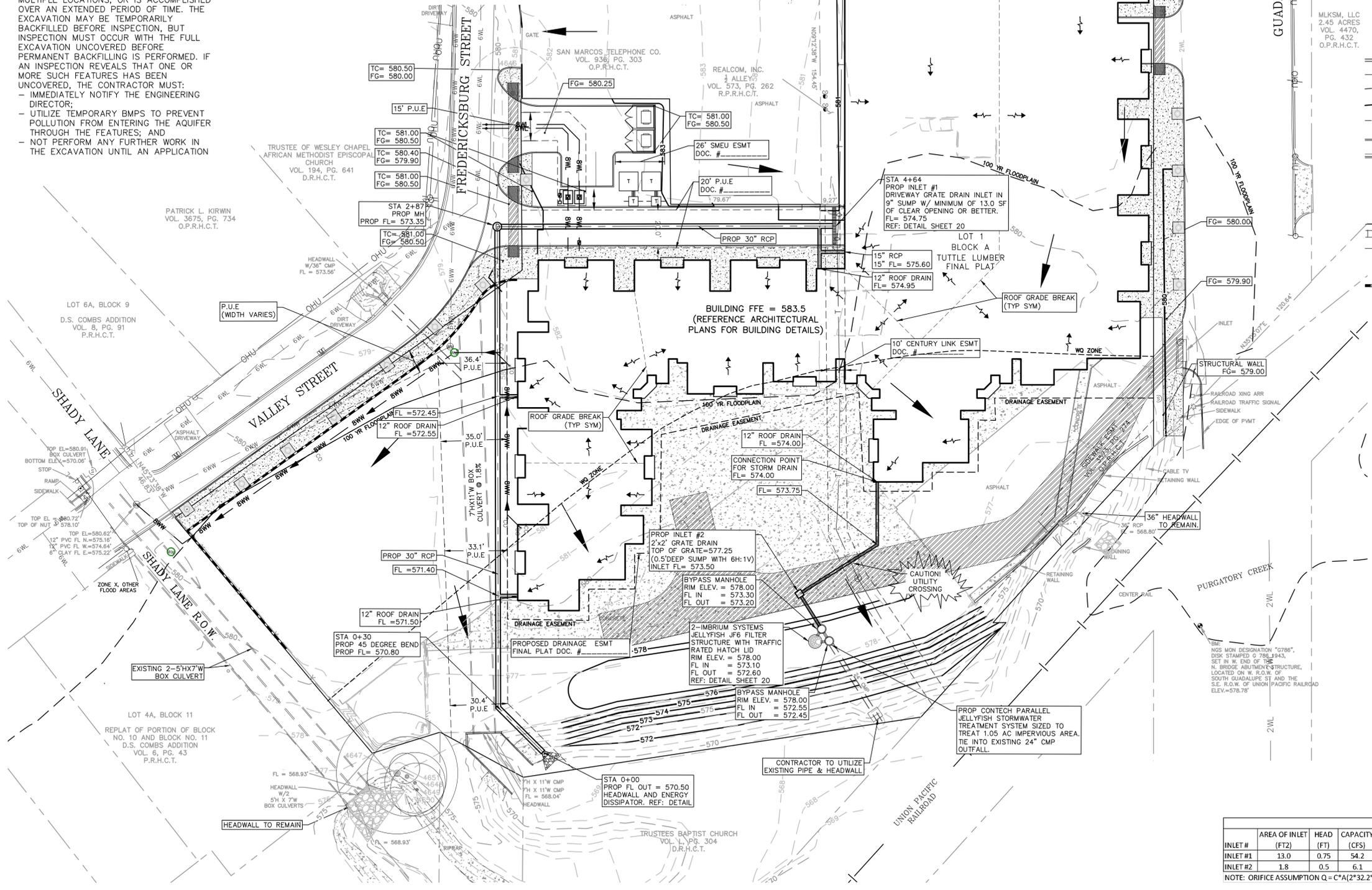
1. DURING CONSTRUCTION, THE PERSON PERFORMING THE DEVELOPMENT MUST EITHER ENGAGE A QUALIFIED GEOLOGIST TO INSPECT THE EXCAVATION, OR NOTIFY THE ENGINEERING DIRECTOR TO ARRANGE FOR INSPECTION OF THE EXCAVATION BY CITY PERSONNEL. THE INSPECTION WILL BE FOR THE PURPOSE OF DETERMINING WHETHER THE EXCAVATION HAS UNCOVERED ANY GEOLOGIC OR MANMADE FEATURE THAT PRESENTS A POSSIBLE AVENUE FOR RECHARGE TO THE AQUIFER. THE INSPECTION WILL BE MADE EITHER UPON COMPLETION OF THE EXCAVATION, IF IT IS IN A SINGLE, DEFINED AREA, OR IN SEGMENTS, IF THE EXCAVATION IS LINEAR, OR IS IN MULTIPLE LOCATIONS, OR IS ACCOMPLISHED OVER AN EXTENDED PERIOD OF TIME. THE EXCAVATION MAY BE TEMPORARILY BACKFILLED BEFORE INSPECTION, BUT INSPECTION MUST OCCUR WITH THE FULL EXCAVATION UNCOVERED BEFORE PERMANENT BACKFILLING IS PERFORMED. IF AN INSPECTION REVEALS THAT ONE OR MORE SUCH FEATURES HAS BEEN UNCOVERED, THE CONTRACTOR MUST:
 - IMMEDIATELY NOTIFY THE ENGINEERING DIRECTOR;
 - UTILIZE TEMPORARY BMPs TO PREVENT POLLUTION FROM ENTERING THE AQUIFER THROUGH THE FEATURES; AND
 - NOT PERFORM ANY FURTHER WORK IN THE EXCAVATION UNTIL AN APPLICATION

FOR AN AMENDMENT TO THE APPROVED WATERSHED PROTECTION PLAN (PHASE 1, PHASE 2, OR QUALIFIED, AS APPLICABLE), FOR A DEVELOPMENT IN THE RECHARGE ZONE, OR AN APPLICATION FOR APPROVAL OF A SITE PREPARATION PERMIT, FOR A DEVELOPMENT IN THE TRANSITION ZONE, IS SUBMITTED TO AND APPROVED BY THE ENGINEERING DIRECTOR.

- 2) IF A NEW SENSITIVE FEATURE, OR ANY SOLUTION OPENING, CAVE, SINKHOLE, OR SIMILAR FEATURE, IS ENCOUNTERED ON A SITE IN THE RECHARGE ZONE OR TRANSITION ZONE DURING THE CONSTRUCTION PROCESS FOR A

DEVELOPMENT, OR IF A PREVIOUSLY KNOWN SENSITIVE FEATURE IS FOUND IN THE COURSE OF CONSTRUCTION TO BE LARGER OR MORE EXTENSIVE THAN PREVIOUSLY NOTED IN THE GEOLOGIC ASSESSMENT OF THE SITE, THE CONTRACTOR SHALL:

- IMMEDIATELY SUSPEND ALL EXCAVATION AND CONSTRUCTION ACTIVITIES WITHIN 50 FEET OF THE FEATURE, MEASURED HORIZONTALLY;
- IMMEDIATELY NOTIFY THE ENGINEERING DIRECTOR OF THE DISCOVERY; AND
- RETAIN QUALIFIED GEOLOGIST TO INSPECT THE FEATURE AND MAKE A RECOMMENDATION TO THE ENGINEERING DIRECTOR BASED ON THE RELATIVE SENSITIVITY OF THE FEATURE.



LEGEND

- PROPERTY BOUNDARY
- - - - - EXISTING CONTOUR
- PROPOSED CONTOUR
- - - - - EASEMENT OR SETBACK
- MONOLITHIC CURB
- CURB AND GUTTER
- WHEEL STOP
- SIGN
- PROPOSED ACCESSIBLE PARKING SPACE
- ACCESSIBLE RAMP
- FIRE LANE
- BOLLARD
- RETAINING WALL WITH HANDRAIL
- TOP OF PAVEMENT SPOT ELEVATION
- EXISTING TREE

CAUTION:
CONTRACTOR TO VERIFY ALL EXISTING UTILITIES VERTICALLY AND HORIZONTALLY PRIOR TO CONSTRUCTION. CONTRACTOR TO NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.

WARNING!
THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE LOCATION OF UNDERGROUND UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AVOIDING ALL EXISTING UTILITIES BY CALLING TEXAS ONE CALL SYSTEM @ 811 FOR LOCATION OF ALL UTILITIES, AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.

Precast Drainage Structures

Materials & Features

- MAXIMUM PIPE SIZE: 18" I.D. R.C.P.
- CONCRETE: 5,000 PSI
- REINFORCING: per ASTM A-615 or A-185
- CAST IRON FRAME & GRATE: per ASTM A 48; Class 3035
- GRATE WEIGHT: 100 Lbs.
- CATCH BASIN WEIGHT:
 - 2.5' - 1,560 Lbs.
 - 3' - 2,500 Lbs.
 - 4' - 3,420 Lbs.
 - 5' - 4,350 Lbs.
- EXTENSION WEIGHT:
 - 12" - 600 Lbs.
 - 18" - 750 Lbs.

#24 Catch Basin

TITLE	PLANT	STATE	SECTION/PLAT	DATE
#24 Catch Basin	Grand Prairie	TX	8.5	01-25-10

Hanson
HEBELBERG/CEMENT GROUP

INLET CAPACITY

INLET #	AREA OF INLET (FT ²)	HEAD (FT)	CAPACITY (CFS)	COMMENT
INLET #1	13.0	0.75	54.2	GRATE CAPACITY IN EXCESS OF 100-YEAR STORM FLOW
INLET #2	1.8	0.5	6.1	GRATE CAPACITY IN EXCESS OF 25-YEAR STORM FLOW

NOTE: ORIFICE ASSUMPTION $C = C^*A^{0.32}2^*H^{0.5}$

25-YR STORM DRAIN HYDRAULIC SUMMARY TABLE

Start Node	Stop Node	Length (Unified) (ft)	Flow (cfs)	Diameter (in)	Friction Slope (ft/ft)	Cover (Start) (ft)	Elevation Ground (Start) (ft)	Elevation Ground (Stop) (ft)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Invert (Start) (ft)	Invert (Stop) (ft)	Headloss (ft)	Upstream Structure Headloss Coefficient
Sta 0+30	Outfall Sta 0+00	34.7	27.8	30	0.005	3.7	577	577	573.66	573.5	5.66	5.66	570.8	570.5	0.16	0.6
Sta 2+87	Sta 0+30	252.4	27.8	30	0.006	5.15	581	577	575.15	573.96	7.36	5.66	573.35	570.8	1.19	1
Sta 4+64	Sta 2+87	177.7	27.8	30	0.005	3.25	580.5	581	576.55	575.99	7.36	5.66	574.75	573.35	0.56	1

100-YR STORM DRAIN HYDRAULIC SUMMARY TABLE

Start Node	Stop Node	Length (Unified) (ft)	Flow (cfs)	Diameter (in)	Friction Slope (ft/ft)	Cover (Start) (ft)	Elevation Ground (Start) (ft)	Elevation Ground (Stop) (ft)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Invert (Start) (ft)	Invert (Stop) (ft)	Headloss (ft)	Upstream Structure Headloss Coefficient
Sta 0+30	Outfall Sta 0+00	34.7	38.1	30	0.009	3.7	577	577	573.8	573.5	7.76	7.76	570.8	570.5	0.3	0.6
Sta 2+87	Sta 0+30	252.4	38.1	30	0.009	5.15	581	577	576.54	574.36	7.76	7.76	573.35	570.8	2.18	1
Sta 4+64	Sta 2+87	177.7	38.1	30	0.009	3.25	580.5	581	579.01	577.48	7.76	7.76	574.75	573.35	1.53	1

JACOBS
 TPBE Registration #F-2966
 2705 Bee Cave Road, Suite 300
 Austin, Texas 78746
 (512) 314-3100 Fax (512) 314-3135

THE VIEW ON THE SQUARE
 228 S. GUADALUPE STREET
 SAN MARCOS, TEXAS 78666

WATERSHED PROTECTION PLAN PH 2
GRADING & DRAINAGE PLAN

DEVELOPER: CELMARK DEVELOPMENT GROUP
 DRAWN/DESIGNED BY: SZ
 DT/PROJECT MANAGER: DH
 SR. PROJECT MANAGER: JB
 JACOBS PROJECT #: WJXM1800

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

SHEET 10

WJXM1800 The View on The Square V202.5 CADD V202.5 Sheets WPP/WJXM1800GR01