EVAQ - TRAVIS County Zilker [illegible]
PA. 20160405 - correspondence PA

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**Atkins North America, Inc.**
11801 Domain Blvd., Ste. 500
Austin, Texas 78758
**Telephone: +1.512.327.6840**
Fax: +1.512.327.2453
**www.atkinsglobal.com/na**



March 28, 2018



Mr. Robert Sadlier
Water Section Team Leader
Austin Region Office
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

Re: Edwards Aquifer, Travis County
Zilker Park Austin City Limits Staging Area; Located at 2236 ½ Stratford Drive, Austin, Texas, 78746
Revised Request for Approval of a Water Pollution Abatement Plan (WPAP)
30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer
RN102761764

Dear Mr. Sadlier:

Atkins received Texas Commission on Environmental Quality (TCEQ) comments on March 15, 2018 for the WPAP application on the above-referenced project. Please find the following responses below:

1. Please see attached revised Zilker Park Austin City Limits Staging Area Site Development Permit Plans. A City of Austin full sedimentation with filtration pond is proposed as the permanent best management practice (BMP) for the site. The components of the full sedimentation with filtration pond are identified on the plans as a water quality pond and biofiltration pond.
2. Please see attached revised Zilker Park Austin City Limits Staging Area Site Development Permit Plans. The TCEQ General Construction Notes (TCEQ-0592) have been included in the plan sheet set on sheet number 2.
3. Please see attached revised Permanent Stormwater Section which includes Attachment G signed and sealed by the designing P.E.
4. The proposed BMP is a City of Austin full sedimentation with filtration pond which we request to be considered a single BMP meeting the TCEQ approved "sand filter" category for TSS load removal calculations. The sand filter has been replaced with a

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biofilter in the design of the proposed BMP. The BMP meets the sizing requirements for full sedimentation and filtration system under 9A of the Filter Area for Sand Filters in the TCEQ WPAP calculation template. The nomenclature has been updated in the attached portions of the application from extended detention basin/bioretention basin to City of Austin full sedimentation with filtration pond.

Thank you for your consideration. If you should have any questions, please contact me at (281) 529-4200 or Scott Smiley at (512) 342-3217.

Sincerely,

Chad Richards, P.E.
Atkins North America, Inc.
TBPE Registered Firm No. F-474

Enclosures

cc: Mr. Charles Vaclavik, City of Austin Parks and Recreation Department
Mr. Scott Smiley, Atkins
Mr. James "Bo" Slone, TCEQ

## Texas Commission on Environmental Quality

# Edwards Aquifer Application Cover Page

### Our Review of Your Application

**The Edwards Aquifer Program staff conducts an administrative and technical review of all applications. The turnaround time for administrative review can be up to 30 days as outlined in 30 TAC 213.4(e). Generally administrative completeness is determined during the intake meeting or within a few days of receipt. The turnaround time for technical review of an administratively complete Edwards Aquifer application is 90 days as outlined in 30 TAC 213.4(e). Please know that the review and approval time is directly impacted by the quality and completeness of the initial application that is received. In order to conduct a timely review, it is imperative that the information provided in an Edwards Aquifer application include final plans, be accurate, complete, and in compliance with 30 TAC 213.**

### Administrative Review

1. Edwards Aquifer applications must be deemed administratively complete before a technical review can begin. To be considered administratively complete, the application must contain completed forms and attachments, provide the requested information, and meet all the site plan requirements. The submitted application and plan sheets should be final plans. Please submit one full-size set of plan sheets with the original application, and half-size sets with the additional copies.

   To ensure that all applicable documents are included in the application, the program has developed tools to guide you and web pages to provide all forms, checklists, and guidance. Please visit the below website for assistance: http://www.tceq.texas.gov/field/eapp.

2. This Edwards Aquifer Application Cover Page form (certified by the applicant or agent) must be included in the application and brought to the administrative review meeting.

3. Administrative reviews are scheduled with program staff who will conduct the review. Applicants or their authorized agent should call the appropriate regional office, according to the county in which the project is located, to schedule a review. The average meeting time is one hour.

4. In the meeting, the application is examined for administrative completeness. Deficiencies will be noted by staff and emailed or faxed to the applicant and authorized agent at the end of the meeting, or shortly after. Administrative deficiencies will cause the application to be deemed incomplete and returned.

   An appointment should be made to resubmit the application. The application is re-examined to ensure all deficiencies are resolved. The application will only be deemed administratively complete when all administrative deficiencies are addressed.

5. If an application is received by mail, courier service, or otherwise submitted without a review meeting, the administrative review will be conducted within 30 days. The applicant and agent will be contacted with the results of the administrative review. If the application is found to be administratively incomplete, it can be retrieved from the regional office or returned by regular mail. If returned by mail, the regional office may require arrangements for return shipping.

6. If the geologic assessment was completed before October 1, 2004 and the site contains "possibly sensitive" features, the assessment must be updated in accordance with the *Instructions to Geologists* (TCEQ-0585 Instructions).

### Technical Review

1. When an application is deemed administratively complete, the technical review period begins. The regional office will distribute copies of the application to the identified affected city, county, and groundwater conservation district whose jurisdiction includes the subject site. These entities and the public have 30 days to provide comments on the application to the regional office. All comments received are reviewed by TCEQ.

2. A site assessment is usually conducted as part of the technical review, to evaluate the geologic assessment and observe existing site conditions. The site must be accessible to our staff. The site boundaries should be clearly marked, features identified in the geologic assessment should be flagged, roadways marked and the alignment of the Sewage Collection System and manholes should be staked at the time the application is submitted. If the site is not marked the application may be returned.
3. We evaluate the application for technical completeness and contact the applicant and agent via Notice of Deficiency (NOD) to request additional information and identify technical deficiencies. There are two deficiency response periods available to the applicant. There are 14 days to resolve deficiencies noted in the first NOD. If a second NOD is issued, there is an additional 14 days to resolve deficiencies. If the response to the second notice is not received, is incomplete or inadequate, or provides new information that is incomplete or inadequate, the application must be withdrawn or if not withdrawn the application will be denied and the application fee will be forfeited.
4. The program has 90 calendar days to complete the technical review of the application. If the application is technically adequate, such that it complies with the Edwards Aquifer rules, and is protective of the Edwards Aquifer during and after construction, an approval letter will be issued. Construction or other regulated activity may not begin until an approval is issued.

**Mid-Review Modifications**

It is important to have final site plans prior to beginning the permitting process with TCEQ to avoid delays.

Occasionally, circumstances arise where you may have significant design and/or site plan changes after your Edwards Aquifer application has been deemed administratively complete by TCEQ. This is considered a "Mid-Review Modification". Mid-Review Modifications may require redistribution of an application that includes the proposed modifications for public comment.

If you are proposing a Mid-Review Modification, two options are available to you:

- You can withdraw your application, and your fees will be refunded or credited for a resubmittal.
- TCEQ can continue the technical review of the application as it was submitted, and a modification application can be submitted at a later time.

If the application is withdrawn, the resubmitted application will be subject to the administrative and technical review processes and will be treated as a new application. The application will be redistributed to the effected jurisdictions.

Please contact the regional office if you have questions. If your project is located in Williamson, Travis, or Hays County, contact TCEQ's Austin Regional Office at 512-339-2929. If your project is in Comal, Bexar, Medina, Uvalde, or Kinney County, contact TCEQ's San Antonio Regional Office at 210-490-3096

Please fill out all required fields below and submit with your application.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **1. Regulated Entity Name:** CITY OF AUSTIN ZILKER PARK | | | | | | | | **2. Regulated Entity No.:** RN102761764 | | |
| **3. Customer Name:** CITY OF AUSTIN | | | | | | | | **4. Customer No.:** CN600135198 | | |
| **5. Project Type:** **(Please circle/check one)** | New | | Modification | | | Extension | | Exception | | |
| **6. Plan Type:** **(Please circle/check one)** | WPAP | CZP | SCS | UST | AST | EXP | EXT | Technical Clarification | Optional Enhanced Measures | |
| **7. Land Use:** **(Please circle/check one)** | Residential | | Non-residential | | | | | **8. Site (acres):** | 12.9 | |
| **9. Application Fee:** | $6,500 | | **10. Permanent BMP(s):** | | | | | City of Austin full sedimentation filtration pond | | |
| **11. SCS (Linear Ft.):** | 0 | | **12. AST/UST (No. Tanks):** | | | | | 0 | | |
| **13. County:** | Travis | | **14. Watershed:** | | | | | Lady Bird Lake | | |

# Application Distribution

Instructions: Use the table below to determine the number of applications required. One original and one copy of the application, plus additional copies (as needed) for each affected incorporated city, county, and groundwater conservation district are required. Linear projects or large projects, which cross into multiple jurisdictions, can require additional copies. Refer to the "Texas Groundwater Conservation Districts within the EAPP Boundaries" map found at:

http://www.tceq.texas.gov/assets/public/compliance/field_ops/eapp/EAPP%20GWCD%20map.pdf

For more detailed boundaries, please contact the conservation district directly.

| Austin Region | | | |
|---|---|---|---|
| **County:** | **Hays** | **Travis** | **Williamson** |
| Original (1 req.) | ___ | _1_ | ___ |
| Region (1 req.) | ___ | _1_ | ___ |
| County(ies) | ___ | _1_ | ___ |
| Groundwater Conservation District(s) | ___Edwards Aquifer Authority<br>___Barton Springs/ Edwards Aquifer<br>___Hays Trinity<br>___Plum Creek | _1_Barton Springs/ Edwards Aquifer | NA |
| City(ies) Jurisdiction | ___Austin<br>___Buda<br>___Dripping Springs<br>___Kyle<br>___Mountain City<br>___San Marcos<br>___Wimberley<br>___Woodcreek | _1_Austin<br>___Bee Cave<br>___Pflugerville<br>___Rollingwood<br>___Round Rock<br>___Sunset Valley<br>___West Lake Hills | ___Austin<br>___Cedar Park<br>___Florence<br>___Georgetown<br>___Jerrell<br>___Leander<br>___Liberty Hill<br>___Pflugerville<br>___Round Rock |

| San Antonio Region | | | | | |
|---|---|---|---|---|---|
| **County:** | **Bexar** | **Comal** | **Kinney** | **Medina** | **Uvalde** |
| Original (1 req.) | ___ | ___ | ___ | ___ | ___ |
| Region (1 req.) | ___ | ___ | ___ | ___ | ___ |
| County(ies) | ___ | ___ | ___ | ___ | ___ |
| Groundwater Conservation District(s) | ___ Edwards Aquifer Authority<br>___Trinity-Glen Rose | ___Edwards Aquifer Authority | ___Kinney | ___EAA<br>___Medina | ___EAA<br>___Uvalde |
| City(ies) Jurisdiction | ___Castle Hills<br>___Fair Oaks Ranch<br>___Helotes<br>___Hill Country Village<br>___Hollywood Park<br>___San Antonio (SAWS)<br>___Shavano Park | ___Bulverde<br>___Fair Oaks Ranch<br>___Garden Ridge<br>___New Braunfels<br>___Schertz | NA | ___San Antonio ETJ (SAWS) | NA |

| I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review. |
|---|
| Chad Richards, PE |
| Print Name of Customer/Authorized Agent |
|  03/28/18 |
| Signature of Customer/Authorized Agent Date |

| **FOR TCEQ INTERNAL USE ONLY** | | | | |
|---|---|---|---|---|
| Date(s)Reviewed: | | Date Administratively Complete: | | |
| Received From: | | Correct Number of Copies: | | |
| Received By: | | Distribution Date: | | |
| EAPP File Number: | | Complex: | | |
| Admin. Review(s) (No.): | | No. AR Rounds: | | |
| Delinquent Fees (Y/N): | | Review Time Spent: | | |
| Lat./Long. Verified: | | SOS Customer Verification: | | |
| Agent Authorization Complete/Notarized (Y/N): | | Fee Check: | Payable to TCEQ (Y/N): | |
| Core Data Form Complete (Y/N): | | | Signed (Y/N): | |
| Core Data Form Incomplete Nos.: | | | Less than 90 days old (Y/N): | |

# General Information Form

**Texas Commission on Environmental Quality**

For Regulated Activities on the Edwards Aquifer Recharge and Transition Zones and Relating to 30 TAC §213.4(b) & §213.5(b)(2)(A), (B) Effective June 1, 1999

***To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.***

***Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.***

## Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **General Information Form** is hereby submitted for TCEQ review. The application was prepared by:

Print Name of Customer/Agent: Chad Richards, PE

Date: January 31, 2018

Signature of Customer/Agent:

## Project Information

1. Regulated Entity Name: City of Austin Zilker Park
2. County: Travis
3. Stream Basin: Lady Bird Lake
4. Groundwater Conservation District (If applicable): Barton Springs/Edwards Aquifer
5. Edwards Aquifer Zone:

   ☒ Recharge Zone
   ☐ Transition Zone

6. Plan Type:

   ☒ WPAP
   ☐ SCS
   ☐ Modification
   ☐ AST
   ☐ UST
   ☐ Exception Request

7. Customer (Applicant):

   Contact Person: Charles Vaclavik
   Entity: City of Austin Parks and Recreation Department
   Mailing Address: 200 S Lamar Blvd
   City, State: Austin, TX Zip: 78704
   Telephone: 512-974-9471 FAX: 512-974-6756
   Email Address: charles.vaclavik@austintexas.gov

8. Agent/Representative (If any):

   Contact Person: Chad Richards
   Entity: Atkins North America, Inc.
   Mailing Address: 17220 Katy Freeway, Building 1, Suite 200
   City, State: Houston, Texas Zip: 77094
   Telephone: 281-529-4200 FAX: 713-576-8501
   Email Address: chad.richards@atkinsglobal.com

9. Project Location:

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

10. ☒ The location of the project site is described below. The description provides sufficient detail and clarity so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation.

    Zilker Park east of MoPac Bridge to Lou Neff, Stratford Drive to Lady Bird Lake, 2236 1/2 Stratford Dr., Austin, TX 78746

11. ☒ **Attachment A – Road Map**. A road map showing directions to and the location of the project site is attached. The project location and site boundaries are clearly shown on the map.

12. ☒ **Attachment B - USGS / Edwards Recharge Zone Map**. A copy of the official 7 ½ minute USGS Quadrangle Map (Scale: 1" = 2000') of the Edwards Recharge Zone is attached. The map(s) clearly show:

    ☒ Project site boundaries.
    ☒ USGS Quadrangle Name(s).
    ☒ Boundaries of the Recharge Zone (and Transition Zone, if applicable).
    ☒ Drainage path from the project site to the boundary of the Recharge Zone.

13. ☒ **The TCEQ must be able to inspect the project site or the application will be returned**. Sufficient survey staking is provided on the project to allow TCEQ regional staff to locate the boundaries and alignment of the regulated activities and the geologic or manmade features noted in the Geologic Assessment.

☐ Survey staking will be completed by this date: _____

14. ☒ **Attachment C – Project Description**. Attached at the end of this form is a detailed narrative description of the proposed project. The project description is consistent throughout the application and contains, at a minimum, the following details:

    ☒ Area of the site
    ☒ Offsite areas
    ☒ Impervious cover
    ☒ Permanent BMP(s)
    ☒ Proposed site use
    ☒ Site history
    ☒ Previous development
    ☒ Area(s) to be demolished

15. Existing project site conditions are noted below:

    ☐ Existing commercial site
    ☐ Existing industrial site
    ☐ Existing residential site
    ☐ Existing paved and/or unpaved roads
    ☒ Undeveloped (Cleared)
    ☒ Undeveloped (Undisturbed/Uncleared)
    ☒ Other: Public Park

## *Prohibited Activities*

16. ☒ I am aware that the following activities are prohibited on the Recharge Zone and are not proposed for this project:

    (1) Waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control);

    (2) New feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3;

    (3) Land disposal of Class I wastes, as defined in 30 TAC §335.1;

    (4) The use of sewage holding tanks as parts of organized collection systems; and

    (5) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41(b), (c), and (d) of this title (relating to Types of Municipal Solid Waste Facilities).

    (6) New municipal and industrial wastewater discharges into or adjacent to water in the state that would create additional pollutant loading.

17. ☐ I am aware that the following activities are prohibited on the Transition Zone and are not proposed for this project:

    (1) Waste disposal wells regulated under 30 TAC Chapter 331 (relating to Underground Injection Control);

(2) Land disposal of Class I wastes, as defined in 30 TAC §335.1; and

(3) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41 (b), (c), and (d) of this title.

## *Administrative Information*

18. The fee for the plan(s) is based on:

☒ For a Water Pollution Abatement Plan or Modification, the total acreage of the site where regulated activities will occur.
☐ For an Organized Sewage Collection System Plan or Modification, the total linear footage of all collection system lines.
☐ For a UST Facility Plan or Modification or an AST Facility Plan or Modification, the total number of tanks or piping systems.
☐ A request for an exception to any substantive portion of the regulations related to the protection of water quality.
☐ A request for an extension to a previously approved plan.

19. ☒ Application fees are due and payable at the time the application is filed. If the correct fee is not submitted, the TCEQ is not required to consider the application until the correct fee is submitted. Both the fee and the Edwards Aquifer Fee Form have been sent to the Commission's:

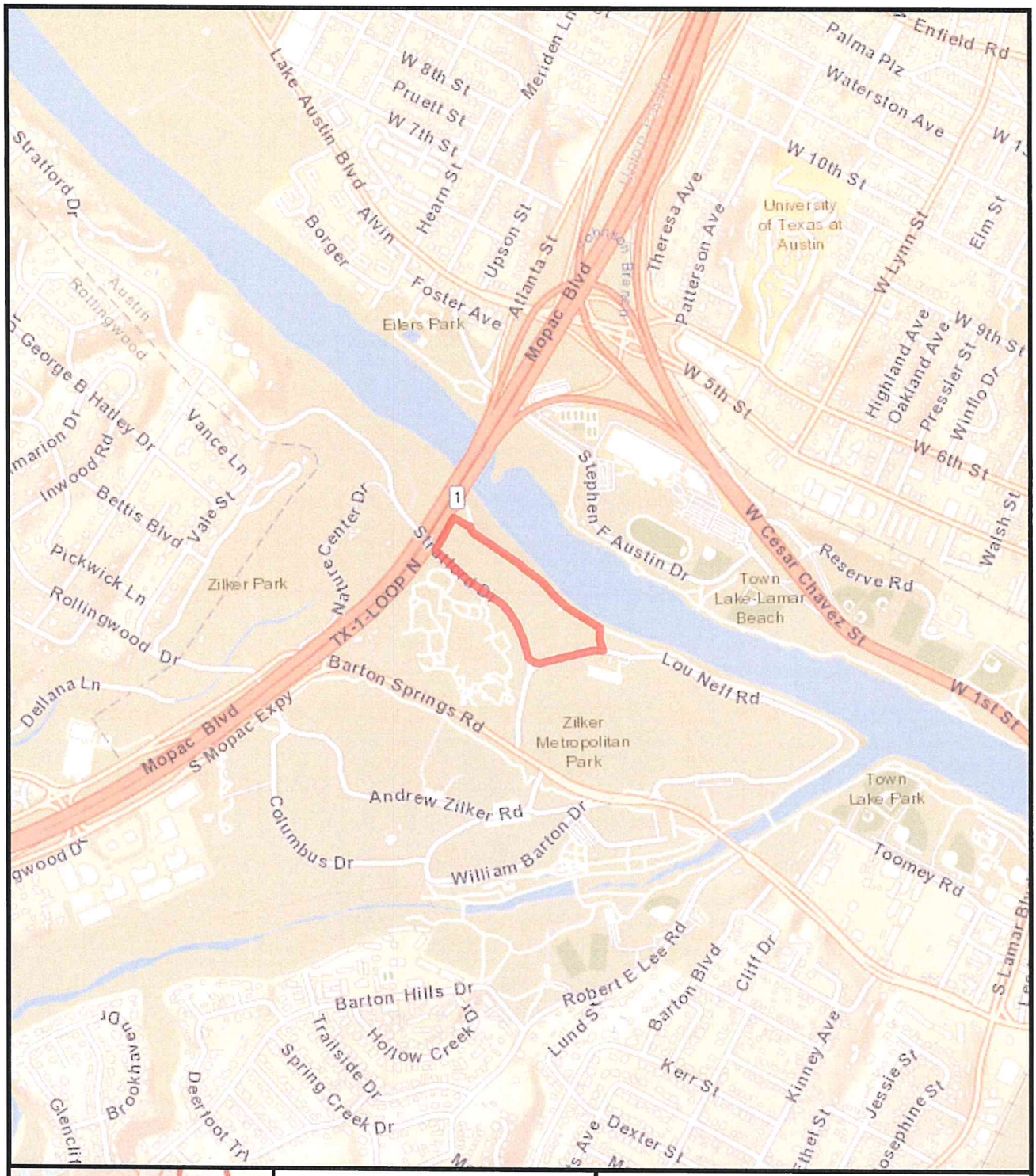
☐ TCEQ cashier
☒ Austin Regional Office (for projects in Hays, Travis, and Williamson Counties)
☐ San Antonio Regional Office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)

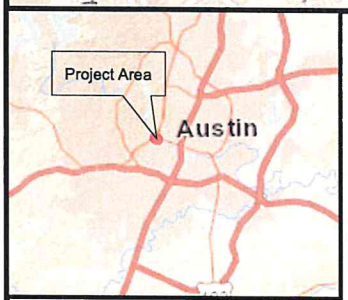
20. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

21. ☒ No person shall commence any regulated activity until the Edwards Aquifer Protection Plan(s) for the activity has been filed with and approved by the Executive Director.

**ATTACHMENT A**

**Road Map**




## Legend

Project Site

Coordinate System: NAD 1983 StatePlane Texas Central FIPS 4203 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
False Easting: 2,296,583.3333
False Northing: 9,842,500.0000
Central Meridian: -100.3333
Standard Parallel 1: 30.1167
Standard Parallel 2: 31.8833
Latitude Of Origin: 29.6667
Units: Foot US

0 500 1,000 Feet

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**Attachment A**

**Road Map**
**Zilker Park Austin City Limits Staging Area**
**City of Austin**

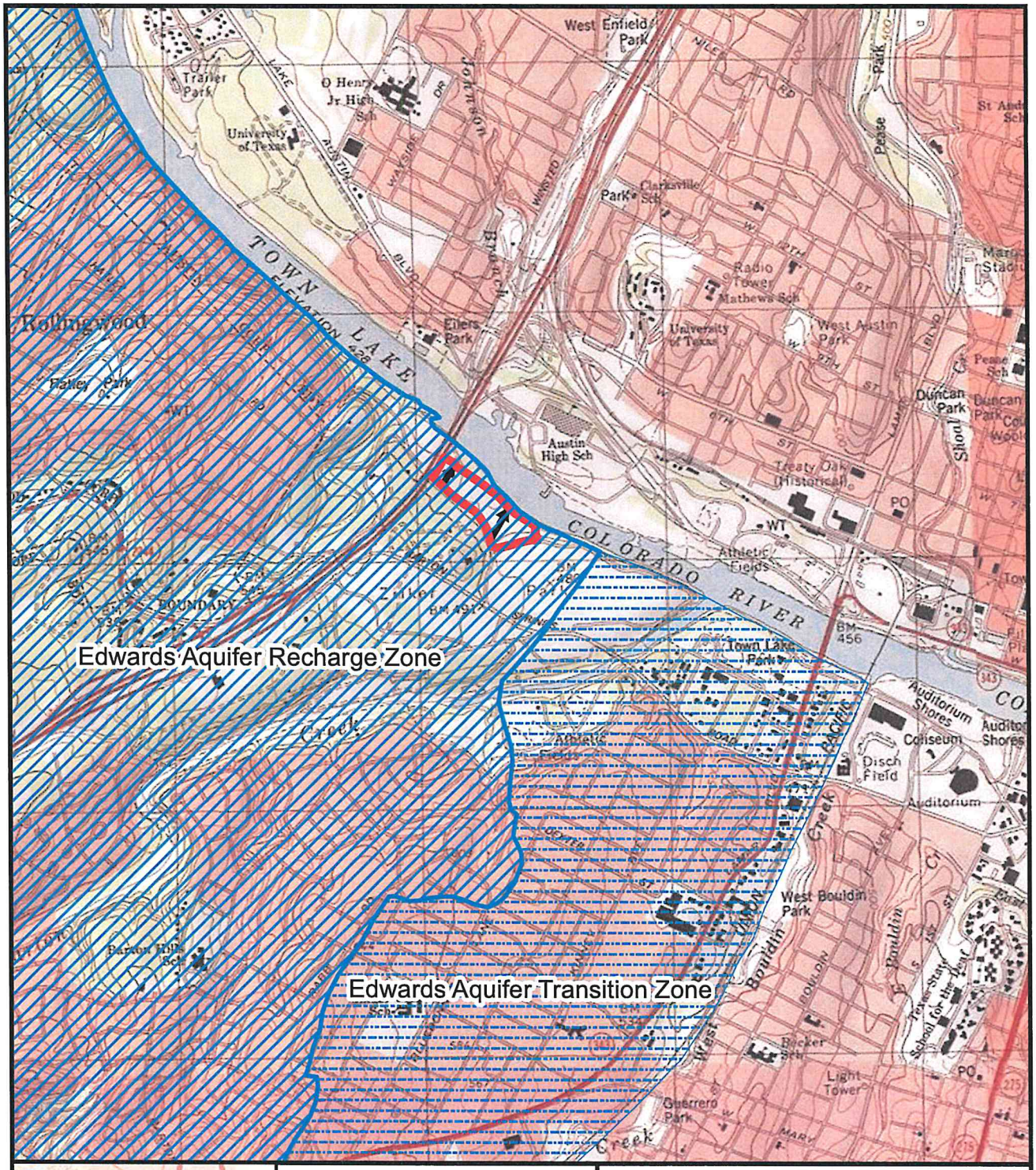
**Travis County, Texas**

| | |
|---|---|
| Prepared By: Atkins/SIEG7671 | 1 inch = 1,250 feet |
| Job No.: 100053691 | Date: Jan 26, 2018 |

File: O:\Water Resources\Stormwater Compliance\PROJECTS\100053691 Zilker WPAP\WR\GIS\mxd\Attachment A.mxd

**ATTACHMENT B**

**USGS / Edwards Recharge Zone Map**




**Legend**

- Edwards Aquifer Recharge Zone
- Edwards Aquifer Transition Zone
- Project Site
- Drainage Paths

**7.5 Minute USGS Quadrangle Map**
**USGS Quad Number: 30097C7**
**USGS Quad Name: AUSTIN WEST**

0 500 1,000 Feet

Coordinate System: NAD 1983 StatePlane Texas Central FIPS 4203 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
False Easting: 2,296,583.3333
False Northing: 9,842,500.0000
Central Meridian: -100.3333
Standard Parallel 1: 30.1167
Standard Parallel 2: 31.8833
Latitude Of Origin: 29.6667
Units: Foot US

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**Attachment B**

**Zilker Park Austin City Limits Staging Area**
**City of Austin**

**Travis County, Texas**

| | |
|---|---|
| Prepared By: Atkins/SIEG7671 | 1 inch = 2,000 feet |
| Job No.: 100053691 | Date: Jan 26, 2018 |

File: O:\Water Resources\Stormwater Compliance\PROJECTS\100053691 Zilker WPAP\WR\GIS\mxd\Attachment B.mxd

**ATTACHMENT C**

**Project Description**

# Attachment C: Project Description

The proposed project is located in Austin, Travis County, Texas. The proposed site is located within Zilker Park between Stratford Lane and Lady Bird Lake, east of Mopac Boulevard. The project proposes to create a stabilized staging area for the Austin City Limits (ACL) festival support facilities with a construction area of 12.9 acres.

The project site is located on top of the existing Butler Landfill cap and fully within the Edwards Aquifer Recharge Zone. The limits of construction are fully within the existing Butler Landfill cap and no undistrurbed areas will be disturbed by the project. The project is within the 500-year floodplain base flood elevation, but none of the proposed activities are within the 100-year base flood elevation. Some demolition and clearing of the project site will be necessary; this includes the removal of wood bollards, trees, fence line, and entrances.

Existing drainage areas drain into either a swale or wetland and are discharged into Lady Bird Lake via a 36-inch storm drain outlet. There is no existing impervious cover within the proposed limits of construction. The proposed impervious area is 7.87 acres which is made up of crushed stone, pervious pavers, concrete walkways, concrete driveways, and rip-rap.

In the proposed condition, approximately 10.67 acres drain from the construction areas containing impervious cover of the project to a proposed onsite City of Austin full sedimentation filtration pond (Section 1.6.5 of the City of Austin Environmental Criteria Manual). Approximately 16.85 acres of off-site drainage will flow towards the project area, but it will be intercepted by a proposed swale that discharges directly into Lady Bird Lake via a 36-inch storm drain.

The water quality goal is to remove 80% of the increased total suspended solids (TSS) from the proposed development. As presented in the design calculations (Permanent Stormwater Section), this will be accomplished using the City of Austin full sedimentation filtration pond. The design calculations demonstrate that approximately 7.87 acres of impervious cover will drain onsite and will require 6,850-lbs of TSS removal. The onsite City of Austin full sedimentation filtration pond consists of a sedimentation basin (labeled as a water quality pond on the construction plans) and a filtration basin (labeled as a bio-filtration pond on the construction plans) is sufficient for the removal of TSS on this project, and will be located on the eastern end of the project site (see drainage area map, Attachment G of Temporary Stormwater Section).

### Geologic Assessment Exception

Although the proposed project site is located within the Edwards Aquifer Recharge Zone, a geological assessment exception is requested (see Attachment D of WPAP Application Section). Existing geological features have been covered by the landfill and cap and no natural geologic formations remain. The site was excavated as a quarry and subsequently filled with mostly domestic waste and then covered with an imported clay cap approximately 4 feet thick. The limits of construction are fully within the existing Butler Landfill cap and no undistrurbed areas will be disturbed by the project.

### Temporary Controls

Temporary stormwater control measures will be used to mitigate soil loss in a manner that is consistent with best management practices (BMPs). This will include the use of rock berms, silt fences, a stabilized construction entrance, sediment traps and filter bags, and diversions. See Temporary Stormwater Section for additional information.

# Water Pollution Abatement Plan Application

**Texas Commission on Environmental Quality**

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b), Effective June 1, 1999

***To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.***

***Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.***

## Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Water Pollution Abatement Plan Application Form** is hereby submitted for TCEQ review and Executive Director approval. The form was prepared by:

Print Name of Customer/Agent: Chad Richards, PE

Date: January 26, 2018

Signature of Customer/Agent:

**Regulated Entity Name:** City of Austin Zilker Park

## Regulated Entity Information

1. The type of project is:

   ☐ Residential: Number of Lots:_____
   ☐ Residential: Number of Living Unit Equivalents:_____
   ☐ Commercial
   ☐ Industrial
   ☒ Other:Public/Park Redevelopment

2. Total site acreage (size of property):12.9

3. Estimated projected population:0

4. The amount and type of impervious cover expected after construction are shown below:

**Table 1 - Impervious Cover Table**

| Impervious Cover of Proposed Project | Sq. Ft. | Sq. Ft./Acre | Acres |
|---|---|---|---|
| Structures/Rooftops | 1,495 | ÷ 43,560 = | 0.03 |
| Parking | 281,775 | ÷ 43,560 = | 6.47 |
| Other paved surfaces | 59,605 | ÷ 43,560 = | 1.37 |
| Total Impervious Cover | 342,875 | ÷ 43,560 = | 7.87 |

**Total Impervious Cover** 7.87 **÷ Total Acreage** 12.9 **X 100 =** 61.01**% Impervious Cover**

5. ☒ **Attachment A - Factors Affecting Surface Water Quality.** A detailed description of all factors that could affect surface water and groundwater quality that addresses ultimate land use is attached.

6. ☒ Only inert materials as defined by 30 TAC §330.2 will be used as fill material.

## *For Road Projects Only*

**Complete questions 7 - 12 if this application is exclusively for a road project.**

7. Type of project:

   ☐ TXDOT road project.
   ☐ County road or roads built to county specifications.
   ☐ City thoroughfare or roads to be dedicated to a municipality.
   ☐ Street or road providing access to private driveways.

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

   ☐ Concrete
   ☐ Asphaltic concrete pavement
   ☐ Other: _____

9. Length of Right of Way (R.O.W.): _____ feet.

   Width of R.O.W.: _____ feet.
   L x W = _____ $Ft^2$ ÷ 43,560 $Ft^2$/Acre = _____ acres.

10. Length of pavement area: _____ feet.

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

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

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

12. ☐ Maintenance and repair of existing roadways that do not require approval from the TCEQ Executive Director. Modifications to existing roadways such as widening roads/adding shoulders totaling more than one-half (1/2) the width of one (1) existing lane require prior approval from the TCEQ.

## *Stormwater to be generated by the Proposed Project*

13. ☒ **Attachment B - Volume and Character of Stormwater**. A detailed description of the volume (quantity) and character (quality) of the stormwater runoff which is expected to occur from the proposed project is attached. The estimates of stormwater runoff quality and quantity are based on the area and type of impervious cover. Include the runoff coefficient of the site for both pre-construction and post-construction conditions.

## *Wastewater to be generated by the Proposed Project*

14. The character and volume of wastewater is shown below:

| | |
|---|---|
| 0% Domestic | 0 Gallons/day |
| 0% Industrial | 0 Gallons/day |
| 0% Commingled | 0 Gallons/day |
| TOTAL gallons/day 0 | |

15. Wastewater will be disposed of by:

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

☐ **Attachment C - Suitability Letter from Authorized Agent**. An on-site sewage facility will be used to treat and dispose of the wastewater from this site. The appropriate licensing authority's (authorized agent) written approval is attached. It states that the land is suitable for the use of private sewage facilities and will meet or exceed the requirements for on-site sewage facilities as specified under 30 TAC Chapter 285 relating to On-site Sewage Facilities.

☐ Each lot in this project/development is at least one (1) acre (43,560 square feet) in size. The system will be designed by a licensed professional engineer or registered sanitarian and installed by a licensed installer in compliance with 30 TAC Chapter 285.

☐ Sewage Collection System (Sewer Lines):

☐ Private service laterals from the wastewater generating facilities will be connected to an existing SCS.

☐ Private service laterals from the wastewater generating facilities will be connected to a proposed SCS.

☐ The SCS was previously submitted on_____.

☐ The SCS was submitted with this application.

☐ The SCS will be submitted at a later date. The owner is aware that the SCS may not be installed prior to Executive Director approval.

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

☐ Existing.
☐ Proposed.

16. ☐ All private service laterals will be inspected as required in 30 TAC §213.5.

## *Site Plan Requirements*

***Items 17 – 28 must be included on the Site Plan.***

17. ☒ The Site Plan must have a minimum scale of 1" = 400'.

Site Plan Scale: 1" = 60'.

18. 100-year floodplain boundaries:

☐ Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled.
☒ No part of the project site is located within the 100-year floodplain.
The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s): FEMA, Flood Insurance Rate Map for Travis County, Texas and Incorporated Areas, Panel Number 0445J, Map Number 48453C0445J, Revised January 6, 2016

19. ☒ The layout of the development is shown with existing and finished contours at appropriate, but not greater than ten-foot contour intervals. Lots, recreation centers, buildings, roads, open space, etc. are shown on the plan.

☐ The layout of the development is shown with existing contours at appropriate, but not greater than ten-foot intervals. Finished topographic contours will not differ from the existing topographic configuration and are not shown. Lots, recreation centers, buildings, roads, open space, etc. are shown on the site plan.

20. All known wells (oil, water, unplugged, capped and/or abandoned, test holes, etc.):

☐ There are _____ (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply)

☐ The wells are not in use and have been properly abandoned.
☐ The wells are not in use and will be properly abandoned.
☐ The wells are in use and comply with 16 TAC §76.

☒ There are no wells or test holes of any kind known to exist on the project site.

21. Geologic or manmade features which are on the site:

☐ All sensitive geologic or manmade features identified in the Geologic Assessment are shown and labeled.
☐ No sensitive geologic or manmade features were identified in the Geologic Assessment.

☒ **Attachment D - Exception to the Required Geologic Assessment.** A request and justification for an exception to a portion of the Geologic Assessment is attached.

22. ☒ The drainage patterns and approximate slopes anticipated after major grading activities.
23. ☒ Areas of soil disturbance and areas which will not be disturbed.
24. ☒ Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.
25. ☒ Locations where soil stabilization practices are expected to occur.
26. ☒ Surface waters (including wetlands).

    ☐ N/A

27. ☒ Locations where stormwater discharges to surface water or sensitive features are to occur.

    ☐ There will be no discharges to surface water or sensitive features.

28. ☒ Legal boundaries of the site are shown.

## *Administrative Information*

29. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.
30. ☒ Any modification of this WPAP will require Executive Director approval, prior to construction, and may require submission of a revised application, with appropriate fees.

# Attachment A: Factors Affecting Surface Water Quality

Water quality is affected by activities during and after construction. During construction, temporary controls will be in place to minimize the effects of construction. After construction, permanent controls will function to reduce the impact of the proposed development.

Construction activities that could potentially affect water quality include construction vehicle traffic, handling of construction equipment and materials, fuels, etc. Loose soil carries the risk of sediment pollution to natural water and the Aquifer. Temporary sediment barriers (rock berms and silt fences), sediment traps, dewatering filter bags, diversions, and a stabilized construction entrance and exit will be used during construction to prevent sediment pollution. Other activities include the handling and disposal of waste materials, hazardous waste, and sanitary waste which pose a risk of contamination. Guidelines for these activities are specified in accordance to the TCEQ Construction General Permit (TXR150000) Stormwater Pollution Prevention Plan.

Permanent factors that impact water quality include future construction, landscape practices, runoff from on-site impervious cover, etc. An onsite City of Austin full sedimentation filtration pond will capture and remove 80% of the total suspended solids loading anticipated by increases in impervious cover, per the Edwards Aquifer Rules as presented in the design calculations (Permanent Stormwater Section).

# Attachment B: Volume and Character of Stormwater

The project site is fully located within the Edwards Aquifer Recharge Zone. Localized drainage considerations were made for on-site and off-site areas. Approximately 16.85 acres of off-site drainage is to be intercepted by a proposed swale and discharged into Lady Bird Lake via a proposed 36-inch storm drain outlet. Approximately 10.67 acres will drain from the limits of construction from onsite drainage areas into a proposed City of Austin full sedimentation filtration pond.

In addition to the 36-inch proposed storm drain outfall, there is one existing storm drain outfall (36-inches) that is to remain. The existing storm drain will be directly connected to the proposed City of Austin full sedimentation filtration pond. It will be responsible for discharging the stormwater collected from onsite drainage areas. Both of the outfalls were designed for 25-year frequency storm event flow rates.

The character (quality) of the onsite runoff is considered typical for a staging area with the majority of the site being impervious. Conventional treatment techniques are expected to provide adequate water quality controls. Permanent factors that impact water quality include landscape practices and runoff from onsite impervious cover.

The water quality goal is to remove 80% of the increased total suspended solids (TSS) from the proposed project. This will be accomplished using an onsite City of Austin full sedimentation filtration pond. There is no existing impervious cover within the proposed limits of construction. The pre-construction runoff coefficient for a 25-year storm frequency is approximately 0.42, and the post-construction runoff coefficient for a 25-year storm frequency is approximately 0.72. The proposed project adds 7.87 acres of impervious cover requiring 6,850-lbs of TSS removal. The proposed onsite City of Austin full sedimentation filtration pond consists of a sedimentation basin (labeled as a water quality pond on the construction plans) and a filtration basin (labeled as a bio-filtration pond on the construction plans) is sufficient for the removal of TSS on this project, and will be located on the eastern end of the project site. The City of Austin has agreed to maintain and upkeep this pond, and follow the maintenance requirements listed out in Attachment G of the Permanent Stormwater Section.

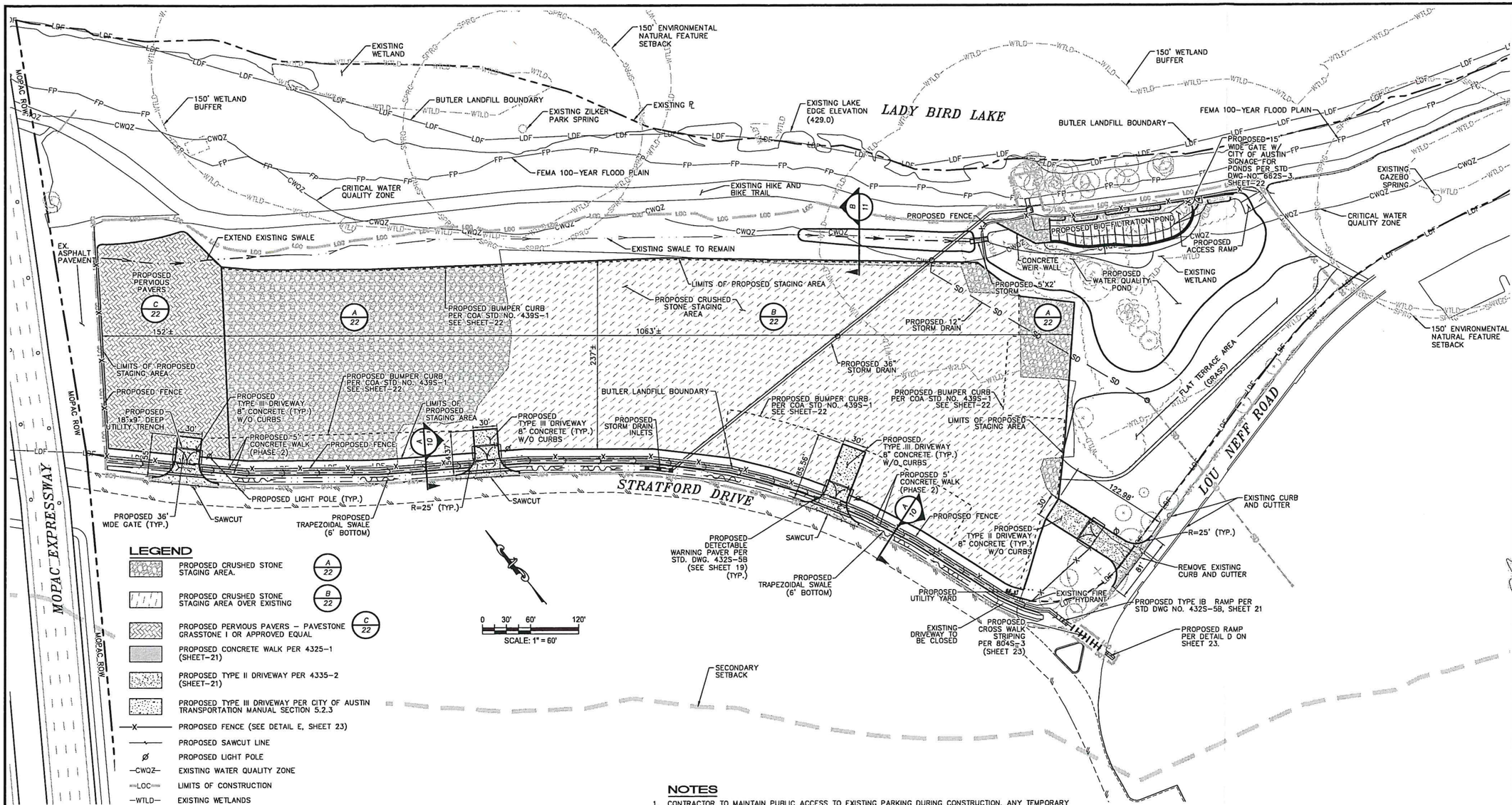
The drainage area map in Attachment G of the Temporary Stormwater Section shows the outfall locations, flow paths, and the location of the water quality pond.

# Attachment D: Exception to the Required Geologic Assessment

Although the proposed project site is located within the Edwards Aquifer Recharge Zone, a geological assessment exception is requested. Existing geological features have been covered by the landfill and cap and no natural geologic formations remain. The site was excavated as a quarry and subsequently filled with mostly domestic waste and then covered with an imported clay cap approximately 4 feet thick. The limits of construction are fully within the existing Butler Landfill cap and no undisturbed areas will be disturbed by the project. Please refer to the following project boring logs, geologic and soils maps, and landfill information.

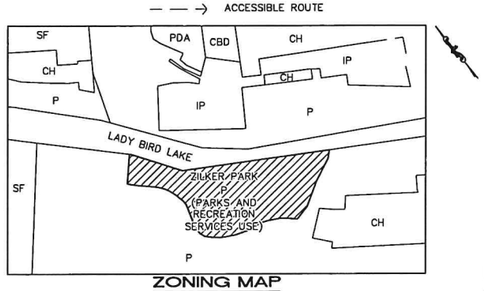
**ATTACHMENT**

**Site Plan**




## LEGEND

- PROPOSED CRUSHED STONE STAGING AREA. (A/22)
- PROPOSED CRUSHED STONE STAGING AREA OVER EXISTING (B/22)
- PROPOSED PERVIOUS PAVERS – PAVESTONE GRASSTONE I OR APPROVED EQUAL (C/22)
- PROPOSED CONCRETE WALK PER 4325-1 (SHEET-21)
- PROPOSED TYPE II DRIVEWAY PER 4335-2 (SHEET-21)
- PROPOSED TYPE III DRIVEWAY PER CITY OF AUSTIN TRANSPORTATION MANUAL SECTION 5.2.3
- PROPOSED FENCE (SEE DETAIL E, SHEET 23)
- PROPOSED SAWCUT LINE
- PROPOSED LIGHT POLE
- EXISTING WATER QUALITY ZONE
- LIMITS OF CONSTRUCTION
- EXISTING WETLANDS
- TREE TO BE REMOVED
- FLOODPLAIN
- ACCESSIBLE ROUTE




## ZONING MAP

DESIGNATION
SF-SINGLE FAMILY
P-PUBLIC
CH-COMMERCIAL
IP-INDUSTRIAL
CBD-CENTRAL BUSINESS DISTRICT
PDA-PLANNED DEVELOPMENT AREA

## BENCHMARK USED

TEXAS COORDINATE SYSTEM, CENTRAL ZONE, NAD83 (GRID) COORDINATES , AS REFERENCED TO THE CITY OF AUSTIN MONUMENT NO. N-2-2401, PER CONTROL ESTABLISHED WITH VRS GPS OBSERVATIONS.

## NOTES

1. CONTRACTOR TO MAINTAIN PUBLIC ACCESS TO EXISTING PARKING DURING CONSTRUCTION. ANY TEMPORARY CLOSURES OR SHUTDOWNS MUST BE COORDINATED WITH CITY OF AUSTIN PARKS AND RECREATION DEPARTMENT.
2. SEE SHEET 6 FOR TYPICAL DRIVEWAY DETAIL.
3. WITHIN PROJECT LIMITS, 100-YEAR FEMA FLOODPLAIN IS EQUIVALENT TO 100-YEAR CITY OF AUSTIN FULLY-DEVELOPED FLOODPLAIN.
4. LOCATIONS WHERE WASTE IS REMOVED SHALL BE BACKFILLED AND COMPACTED WITH CLEAN HIGH- PLASTICITY OR LOW- PLASTICITY CLAY. THE EXCAVATION SHALL BE BACKFILLED TO EXCEED THE EXISTING GRADE AND PROVIDE POSITIVE DRAINAGE.
5. NO WASTE SHALL BE LEFT EXPOSED OVERNIGHT.
6. ANY WATER THAT COMES IN CONTACT WITH WASTE BECOMES CONTAINED WATER AND HAS TO BE PROPERLY DISCHARGED IN A MANNER THAT WILL NOT CAUSE SURFACE WATER OR GROUNDWATER CONTAMINATION.
7. CONTRACTOR WILL ALSO BE USING AN OVM METER DURING CONSTRUCTION OPERATIONS TO MONITOR THE LEVELS OF METHANE GAS. THE EXCAVATIONS WILL BE BACKFILLED PER THE PLANS AND COMPACTED BACK TO EXISTING GRADE, IF METHANE LEVELS ARE DETECTED OVER THE THRESHOLD LIMIT VALUE OR 25% LEL WORK WILL STOP IMMEDIATELY UNTIL THE LEVEL DISSIPATES.
8. PROJECT SITE LOCATED WITHIN THE SECONDARY SETBACK FOR THE ZILKER PARK SUBDISTRICT.
9. ALL EXTERIOR LIGHTING SHALL BE CUT-OFF AND FULLY SHIELDED IN COMPLIANCE WITH SUBCHAPTER E 2.5 AND WILL BE REVIEWED DURING BUILDING PLAN REVIEW. ANY CHANGE OR SUBSTITUTION OF LAMP/LIGHT FIXTURES SHALL BE SUBMITTED TO THE DIRECTOR FOR APPROVAL IN ACCORDANCE WITH SECTION 2.5.2.E.
10. SITE IS A DEDICATED PARKLAND. USE OF PROJECT SITE TO BE PARKS AND RECREATION SERVICES (GENERAL).
11. APPROVAL OF THESE PLANS BY THE CITY OF AUSTIN INDICATES COMPLIANCE WITH APPLICABLE CITY REGULATIONS ONLY. COMPLIANCE WITH ACCESSIBILITY STANDARDS SUCH AS THE 2010 STANDARDS FOR ACCESSIBLE DESIGN OR THE 2012 TEXAS ACCESSIBILITY STANDARDS WAS NOT VERIFIED. THE APPLICANT IS RESPONSIBLE WITH ALL APPLICABLE ACCESSIBILITY STANDARDS.
12. SLOPES ON ACCESSIBLE ROUTES MAY NOT EXCEED 1:20 UNLESS DESIGNED AS RAMP [ANSI 403.3]
13. ACCESSIBLE ROUTES MUST HAVE A CROSS SLOPE NO GREATER THAN 1:50 [ANSI 403.3]
14. WATERFRONT OVERLAY PRIMARY SETBACK COINCIDES WITH CRITICAL WATER QUALITY ZONE AS SHOWN. THE REMAINDER OF THE SITE IS WITHIN THE SECONDARY SETBACK.

**Figure 34:**
Examples of fully-shielded light fixtures.

THESE PLANS ARE COMPLETE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND IN COMPLIANCE WITH THE CITY OF AUSTIN DEVELOPMENT CODE.

SITE PLAN APPROVAL Sheet 6 of 29
FILE NUMBER: SPC-2017-0482C APPLICATION DATE: 11/27/2017
APPROVED BY COMMISSION ON ____ UNDER SECTION 142 OF CHAPTER 25-5 OF THE CITY OF AUSTIN CODE.
EXPIRATION DATE (25-5-81, LDC)____ CASE MANAGER N. HOELTER
PROJECT EXPIRATION DATE (ORD.#970905-A)____ DWPZ____ DDZ____
Director, Development Review Department
RELEASE FOR GENERAL COMPLIANCE: ____ Zoning: ____
Rev. 1 ____ Correction 1 ____
Rev. 2 ____ Correction 2 ____
Rev. 3 ____ Correction 3 ____
Final plat must be recorded by the Project Expiration Date, if applicable. Subsequent Site Plans which do not comply with the Code current at the time of filing, and all required Building Permits and/or a notice of construction (if a building permit is not required), must also be approved prior to the Project Expiration Date.

| NO. | REVISION | BY | DATE |
|---|---|---|---|

DESIGNED BY: NAB/CEA
DRAWN BY: JLC
CHECKED BY: PAB/TPB
APPROVED BY: SAS
DATE: MARCH, 2018

ATKINS
11501 DOMAIN BOULEVARD, SUITE 500
AUSTIN, TEXAS 78758 - (512) 327-6840
TBPE REG. NO. F-474

ZILKER PARK
AUSTIN CITY LIMITS STAGING AREA
SITE DEVELOPMENT PERMIT PLANS

SITE PLAN

SHEET NO. 5
OF 29 SHEETS
FILE NO. 53691-05-SITE
PROJECT NO. 100053691

SPC-2017-0482C

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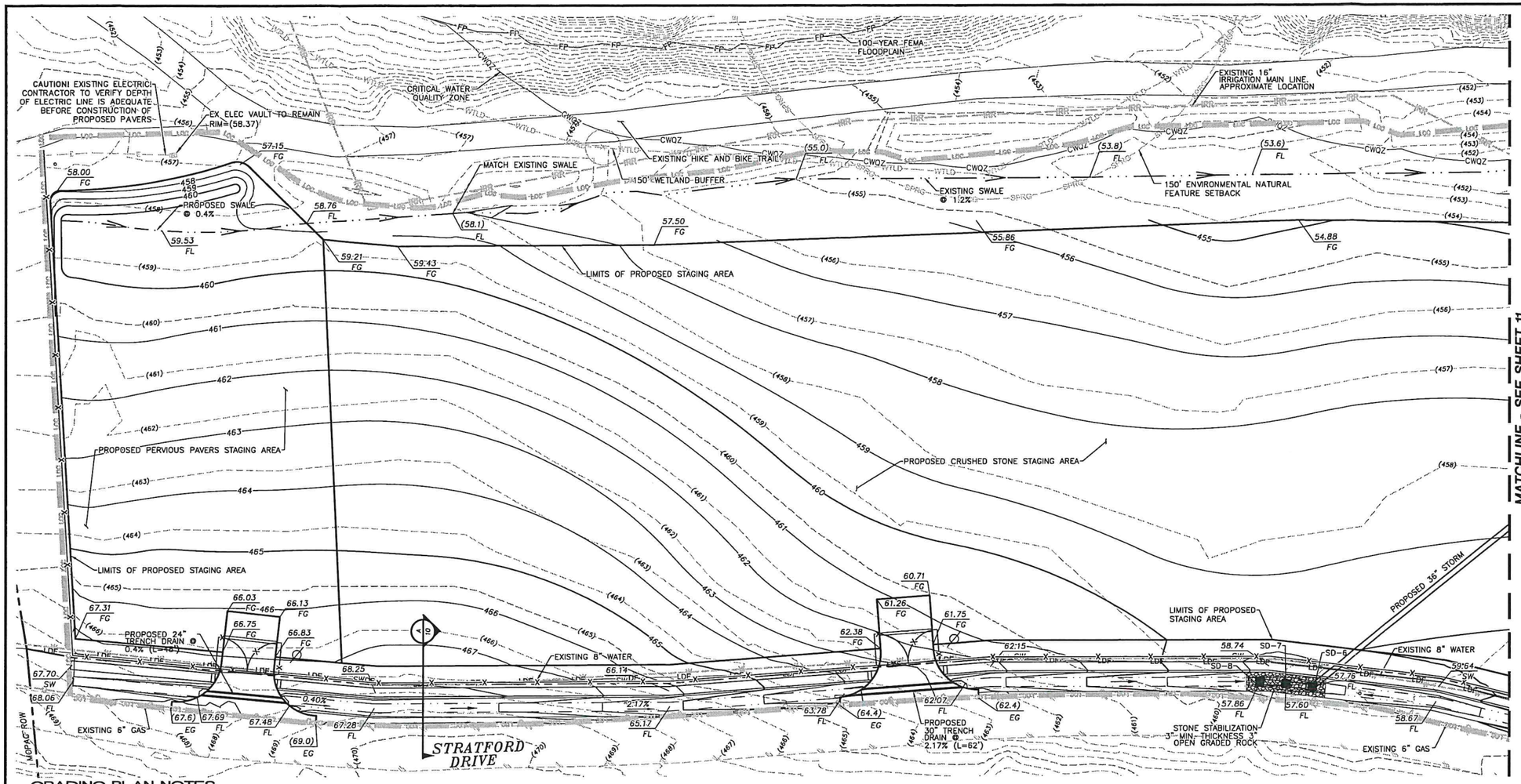



## GRADING PLAN NOTES

1. CONTRACTOR TO ADJUST PAVEMENTS AND CURBS SO THAT THERE ARE SMOOTH TRANSITIONS BETWEEN EXISTING AND PROPOSED.
2. FINAL EXPOSED SUBGRADE SURFACES SHALL BE PROOF ROLLED WITH A SOIL COMPACTOR HAVING A STATIC WEIGHT OF AT LEAST 20 TONS, SUCH AS A CATERPILLAR 815F, TO DETERMINE AREAS OF SOFT OR PUMPING SUBGRADE. SUCH SUBGRADE, ORGANIC MATERIAL, OR OTHER DELETERIOUS MATERIAL SHALL BE UNDERCUT AND REPLACED WITH CRUSHED LIMESTONE BASE MATERIAL AND COMPACTED TO DENSITY OF ADJACENT MATERIAL.
3. PROOF ROLLED SUBGRADE AND RECOMPACT TO A MINIMUM OF 95% OF MAXIMUM DENSITY AS DETERMINED BY TEX-114-E. MOISTURE CONTENT SHALL BE BETWEEN -1% AND +3% OF OPTIMUM.
4. ALL GRADES OUTSIDE OF PAVEMENT SHALL BE 1% MIN. OR 3:1 (33%) MAX. CONTRACTOR TO INSURE POSITIVE DRAINAGE IN GRASSY AREAS AND PAVED AREAS.
5. ACCESSIBLE ROUTES MUST HAVE A CROSS-SLOPE NO GREATER THAN 1:50 (2%) AND RUNNING SLOPES MAY NOT EXCEED 1:20 (5%) UNLESS DESIGNED AS A RAMP.
6. SEE SHEET 17 FOR STORM DRAIN PROFILE.
7. SEE SHEET 6 FOR TRENCH DRAIN & SWALE INFORMATION
8. AN ADDITIONAL 400' SHOULD BE ADDED TO TRUNCATED PLAN GRADES, EXCLUDING EXISTING AND PROPOSED CONTOURS.
9. THE INFORMATION SHOWN ON THESE DRAWINGS INDICATING THE SIZE, TYPE, AND LOCATION OF ANY UNDERGROUND, SURFACE, AND AERIAL UTILITIES OR OTHER EXISTING FEATURES IS NOT GUARANTEED TO BE EXACT OR COMPLETE. THE CONTRACTOR SHALL CONTACT THE AUSTIN AREA "ONE CALL" SYSTEM (1-800-344-8377) FOR EXISTING UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO BEGINNING ANY EXCAVATION. THE CONTRACTOR SHALL ALSO BE FULLY RESPONSIBLE FOR FIELD VERIFYING LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITIES AFFECTED BY THIS PROJECT'S CONSTRUCTION, IN ORDER TO AVOID DAMAGING THOSE UTILITIES, AND SHALL IMMEDIATELY ARRANGE FOR REPAIR AND RESTORATION OF CONTRACTOR-DAMAGED UTILITIES, TO THE SATISFACTION OF THE UTILITY COMPANY, AT THE EXPENSE OF THE CONTRACTOR.
10. LOCATIONS WHERE WASTE IS REMOVED SHALL BE BACKFILLED AND COMPACTED WITH CLEAN HIGH- PLASTICITY OR LOW- PLASTICITY CLAY. THE EXCAVATION SHALL BE BACKFILLED TO EXCEED THE EXISTING GRADE AND PROVIDE POSITIVE DRAINAGE.
11. NO WASTE SHALL BE LEFT EXPOSED OVERNIGHT.
12. ANY WATER THAT COMES IN CONTACT WITH WASTE BECOMES CONTAINED WATER AND HAS TO BE PROPERLY DISCHARGED IN A MANNER THAT WILL NOT CAUSE SURFACE WATER OR GROUNDWATER CONTAMINATION.
13. CONTRACTOR WILL ALSO BE USING AN OVM METER DURING CONSTRUCTION OPERATIONS TO MONITOR THE LEVELS OF METHANE GAS. THE EXCAVATIONS WILL BE BACKFILLED PER THE PLANS AND COMPACTED BACK TO EXISTING GRADE, IF METHANE LEVELS ARE DETECTED OVER THE THRESHOLD LIMIT VALUE OR 25% LEL WORK WILL STOP IMMEDIATELY UNTIL THE LEVEL DISSIPATES.
14. CUT GRADING SHALL NOT EXCEED 4', MAXIMUM.
15. SLOPES ON ACCESSIBLE ROUTES MAY NOT EXCEED 1:20 UNLESS DESIGNED AS RAMP [ANSI 403.3]
16. ACCESSIBLE ROUTES MUST HAVE A CROSS SLOPE NO GREATER THAN 1:50 [ANSI 403.3]

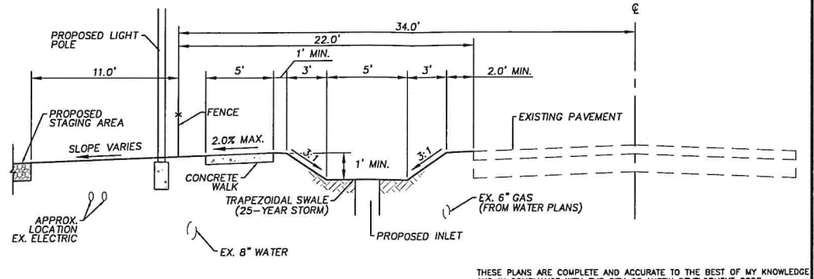
## CONCRETE NOTES

(UNLESS SPECIFIED OTHERWISE IN THE PLANS OR SPECIFICATIONS):

1. ALL CONCRETE WORK, DETAILS, AND CONSTRUCTION METHODS SHALL CONFORM WITH THE PROVISIONS OF THE AMERICAN CONCRETE INSTITUTE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" AND LOCAL BUILDING CODES. IF CODES CONFLICT, LOCAL CODE SHALL TAKE PRECEDENCE.
2. CONCRETE COMPRESSIVE STRENGTH SHALL BE A MINIMUM OF 3000 PSI AT 28 DAYS. IN NO CASE SHALL THE PORTLAND CEMENT FACTOR BE LESS THAN 5.8 BAGS PER CUBIC YARD OF CONCRETE. THE MAXIMUM WATER-CEMENT RATIO SHALL BE 5.6 GALLONS PER BAG. THE AMOUNT OF WATER REQUIRED SHALL BE SUFFICIENT TO PRODUCE CONCRETE WITH A SLUMP OF 4 TO 6 INCHES.
3. ALL REINFORCING STEEL SHALL CONFORM TO THE CURRENT REQUIREMENTS OF ASTM A-615-60, EXCEPT WELDED STEEL WIRE MESH - WHICH SHALL MEET ASTM A-185.
4. ALL CONCRETE SURFACES TO HAVE MEDIUM BROOM FINISH. CHAMFER ALL EXPOSED EDGES OF CONCRETE ONE INCH (1"), UNLESS OTHERWISE NOTED.
5. CONCRETE COVER ON ALL REINFORCEMENT SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED:
   - CONCRETE PLACED AGAINST SOIL - 3"
   - EXPOSED FORMED SURFACES - 2"
   - FLOOR SLABS - 2" FROM TOP SURFACES
6. PAVEMENT SUBBASE SHALL MEET TXDOT GRANULAR SUBBASE, GRADATION #12, COMPACTED TO 95% STANDARD PROCTOR.
7. EXTERIOR CONCRETE SHALL BE AIR ENTRAINED.
8. ANY DESIGN CHANGES SHALL BE APPROVED BY THE ENGINEER.

## LEGEND

- OPP EXISTING POWER POLE
- EXISTING GUY WIRE
- G EXISTING GAS METER
- EXISTING FIRE HYDRANT
- WM EXISTING WATER METER
- EV EXISTING ELECTRIC VAULT
- IRS 5/8" IRON ROD SET W/ATKINS CAP
- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- EXISTING EDGE OF ASPHALT
- -W- EXISTING WATER LINE
- -G- EXISTING GAS LINE
- -SD- EXISTING STORM DRAIN LINE
- -IRR- EXISTING IRRIGATION LINE
- -E- EXISTING ELECTRICAL
- PROPOSED LIGHT POLE
- PROPOSED CATCH BASIN
- SD PROPOSED STORM DRAIN LINE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED RIP-RAP
- FLOW DIRECTION
- -CWQZ- EXISTING WATER QUALITY ZONE
- -LOC- LIMITS OF CONSTRUCTION
- -WTLD- EXISTING WETLANDS
- FL FLOWLINE
- SW SIDEWALK
- FG FINISHED GRADE
- EG EXISTING GRADE




**TYPICAL SECTION** (A/10)
N.T.S.

THESE PLANS ARE COMPLETE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND IN COMPLIANCE WITH THE CITY OF AUSTIN DEVELOPMENT CODE.

SITE PLAN APPROVAL Sheet 10 of 29
FILE NUMBER: SPC-2017-0482C APPLICATION DATE: 11/27/2017
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Final plat must be recorded by the Project Expiration Date, if applicable. Subsequent Site Plans which do not comply with the Code current at the time of filing, and all required Building Permits and/or a notice of construction (if a building permit is not required), must also be approved prior to the Project Expiration Date.

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DESIGNED BY: NAB/CEA
DRAWN BY: JLC
CHECKED BY: FAB/TPB
APPROVED BY: SAS
DATE: MARCH, 2018

ATKINS
11501 DOMAIN BOULEVARD, SUITE 500
AUSTIN, TEXAS 78758 - (512) 327-6940
TBPE REG. NO. F-474

ZILKER PARK
AUSTIN CITY LIMITS STAGING AREA
SITE DEVELOPMENT PERMIT PLANS

GRADING PLAN

SHEET NO. 10
OF 29 SHEETS
FILE NO. 53691-08-GRAD
PROJECT NO. 100053691

SPC-2017-0482C

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MATCHLINE - SEE SHEET 10

BUTLER LANDFILL BOUNDARY

EXISTING LAKE EDGE ELEVATION (429.0)

EXISTING OUTLET

100-YEAR FEMA FLOODPLAIN

EXIST. HIKE AND BIKE TRAIL

PROPOSED FENCE

PROPOSED ACCESS RAMP

PROPOSED BIOFILTRATION POND

PROPOSED SWALE @ 1.2%

PROPOSED 5'X2' STORM

CRITICAL WATER QUALITY ZONE

PROPOSED WATER QUALITY POND (SEE SHEET-15)

150' ENVIRONMENTAL NATURAL FEATURE SETBACK

SEE WATER QUALITY POND DETAIL SHEET-15

LIMITS OF PROPOSED STAGING AREA

EXISTING 16" IRRIGATION MAIN LINE APPROXIMATE LOCATION

PROPOSED 12" STORM

PROPOSED 36" STORM

150' WETLAND BUFFER

PROPOSED CRUSHED STONE STAGING AREA

LIMITS OF PROPOSED STAGING AREA

FLAT TERRACE AREA

"INTERCEPT EXISTING 12" STORM DRAIN W/ PROPOSED MANHOLE

EXISTING 8" WATER

PROPOSED 24" TRENCH DRAIN @ 1.5% (L=58')

EXISTING 6" GAS

PROPOSED FENCE

PROPOSED 5' CONCRETE WALK

STRATFORD DRIVE

LOU NEFF ROAD

EXISTING 12" STORM DRAIN

EXISTING 8" WATER

EXISTING 6" GAS

CAUTION! EXISTING GAS! CONTRACTOR TO VERIFY DEPTH OF GAS LINE IS ADEQUATE BEFORE CONSTRUCTION OF PROPOSED SWALE.

SCALE: 1" = 30'

## LEGEND

- PP EXISTING POWER POLE
- EXISTING GUY WIRE
- G EXISTING GAS METER
- EXISTING FIRE HYDRANT
- WM EXISTING WATER METER
- EV EXISTING ELECTRIC VAULT
- IRS 5/8" IRON ROD SET W/ATKINS CAP
- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- EXISTING EDGE OF ASPHALT
- -W- EXISTING WATER LINE
- -G- EXISTING GAS LINE
- -SD- EXISTING STORM DRAIN LINE
- -IRR- EXISTING IRRIGATION LINE
- -E- EXISTING ELECTRICAL
- PROPOSED LIGHT POLE
- PROPOSED CATCH BASIN
- SD PROPOSED STORM DRAIN LINE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED RIP-RAP
- FLOW DIRECTION

FL FLOWLINE
SW SIDEWALK
FG FINISHED GRADE
EG EXISTING GRADE
-CWQZ- EXISTING WATER QUALITY ZONE
-LOC- LIMITS OF CONSTRUCTION
-WTLD- EXISTING WETLANDS

STAGING AREA

D=VARIES SEE GRADING PLAN

SEE PLAN VIEW ABOVE LEFT, FOR SLOPE

TYPICAL SECTION
N.T.S.

## GRADING PLAN NOTES

1. CONTRACTOR TO ADJUST PAVEMENTS AND CURBS SO THAT THERE ARE SMOOTH TRANSITIONS BETWEEN EXISTING AND PROPOSED.
2. FINAL EXPOSED SUBGRADE SURFACES SHALL BE PROOF ROLLED WITH A SOIL COMPACTOR HAVING A STATIC WEIGHT OF AT LEAST 20 TONS, SUCH AS A CATERPILLAR 815F, TO DETERMINE AREAS OF SOFT OR PUMPING SUBGRADE. SUCH SUBGRADE, ORGANIC MATERIAL, OR OTHER DELETERIOUS MATERIAL SHALL BE UNDERCUT AND REPLACED WITH CRUSHED LIMESTONE BASE MATERIAL AND COMPACTED TO DENSITY OF ADJACENT MATERIAL.
3. PROOF ROLLED SUBGRADE AND RECOMPACT TO A MINIMUM OF 95% OF MAXIMUM DENSITY AS DETERMINED BY TEX-114-E. MOISTURE CONTENT SHALL BE BETWEEN -1% AND +3% OF OPTIMUM.
4. ALL GRADES OUTSIDE OF PAVEMENT SHALL BE 1% MIN. OR 3:1 (33%) MAX. CONTRACTOR TO INSURE POSITIVE DRAINAGE IN GRASSY AREAS AND PAVED AREAS.
5. ACCESSIBLE ROUTES MUST HAVE A CROSS-SLOPE NO GREATER THAN 1:50 (2%) AND RUNNING SLOPES MAY NOT EXCEED 1:20 (5%) UNLESS DESIGNED AS A RAMP.
6. SEE SHEET 17 FOR STORM DRAIN PROFILE.
7. SEE SHEET 6 FOR TRENCH DRAIN & SWALE INFORMATION
8. AN ADDITIONAL 400' SHOULD BE ADDED TO TRUNCATED PLAN GRADES, EXCLUDING EXISTING AND PROPOSED CONTOURS.
9. THE INFORMATION SHOWN ON THESE DRAWINGS INDICATING THE SIZE, TYPE, AND LOCATION OF ANY UNDERGROUND, SURFACE, AND AERIAL UTILITIES OR OTHER EXISTING FEATURES IS NOT GUARANTEED TO BE EXACT OR COMPLETE. THE CONTRACTOR SHALL CONTACT THE AUSTIN AREA "ONE CALL" SYSTEM (1-800-344-8377) FOR EXISTING UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO BEGINNING ANY EXCAVATION. THE CONTRACTOR SHALL ALSO BE FULLY RESPONSIBLE FOR FIELD VERIFYING LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITIES AFFECTED BY THIS PROJECT'S CONSTRUCTION, IN ORDER TO AVOID DAMAGING THOSE UTILITIES, AND SHALL IMMEDIATELY ARRANGE FOR REPAIR AND RESTORATION OF CONTRACTOR-DAMAGED UTILITIES, TO THE SATISFACTION OF THE UTILITY COMPANY, AT THE EXPENSE OF THE CONTRACTOR.
10. LOCATIONS WHERE WASTE IS REMOVED SHALL BE BACKFILLED AND COMPACTED WITH CLEAN HIGH- PLASTICITY OR LOW- PLASTICITY CLAY. THE EXCAVATION SHALL BE BACKFILLED TO EXCEED THE EXISTING GRADE AND PROVIDE POSITIVE DRAINAGE.
11. NO WASTE SHALL BE LEFT EXPOSED OVERNIGHT.
12. ANY WATER THAT COMES IN CONTACT WITH WASTE BECOMES CONTAINED WATER AND HAS TO BE PROPERLY DISCHARGED IN A MANNER THAT WILL NOT CAUSE SURFACE WATER OR GROUNDWATER CONTAMINATION.
13. CONTRACTOR WILL ALSO BE USING AN OVM METER DURING CONSTRUCTION OPERATIONS TO MONITOR THE LEVELS OF METHANE GAS. THE EXCAVATIONS WILL BE BACKFILLED PER THE PLANS AND COMPACTED BACK TO EXISTING GRADE, IF METHANE LEVELS ARE DETECTED OVER THE THRESHOLD LIMIT VALUE OR 25% LEL WORK WILL STOP IMMEDIATELY UNTIL THE LEVEL DISSIPATES.
14. CUT GRADING SHALL NOT EXCEED 4' MAXIMUM.

## CONCRETE NOTES

(UNLESS SPECIFIED OTHERWISE IN THE PLANS OR SPECIFICATIONS):

1. ALL CONCRETE WORK, DETAILS, AND CONSTRUCTION METHODS SHALL CONFORM WITH THE PROVISIONS OF THE AMERICAN CONCRETE INSTITUTE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" AND LOCAL BUILDING CODES. IF CODES CONFLICT, LOCAL CODE SHALL TAKE PRECEDENCE.
2. CONCRETE COMPRESSIVE STRENGTH SHALL BE A MINIMUM OF 3000 PSI AT 28 DAYS. IN NO CASE SHALL THE PORTLAND CEMENT FACTOR BE LESS THAN 5.8 BAGS PER CUBIC YARD OF CONCRETE. THE MAXIMUM WATER-CEMENT RATIO SHALL BE 5.6 GALLONS PER BAG. THE AMOUNT OF WATER REQUIRED SHALL BE SUFFICIENT TO PRODUCE CONCRETE WITH A SLUMP OF 4 TO 6 INCHES.
3. ALL REINFORCING STEEL SHALL CONFORM TO THE CURRENT REQUIREMENTS OF ASTM A-615-60, EXCEPT WELDED STEEL WIRE MESH - WHICH SHALL MEET ASTM A-185.
4. ALL CONCRETE SURFACES TO HAVE MEDIUM BROOM FINISH. CHAMFER ALL EXPOSED EDGES OF CONCRETE ONE INCH (1"), UNLESS OTHERWISE NOTED.
5. CONCRETE COVER ON ALL REINFORCEMENT SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED:
   - CONCRETE PLACED AGAINST SOIL - 3"
   - EXPOSED FORMED SURFACES - 2"
   - FLOOR SLABS - 2" FROM TOP SURFACES
6. PAVEMENT SUBBASE SHALL MEET TXDOT GRANULAR SUBBASE, GRADATION #12, COMPACTED TO 95% STANDARD PROCTOR.
7. EXTERIOR CONCRETE SHALL BE AIR ENTRAINED.
8. ANY DESIGN CHANGES SHALL BE APPROVED BY THE ENGINEER.

THESE PLANS ARE COMPLETE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND IN COMPLIANCE WITH THE CITY OF AUSTIN DEVELOPMENT CODE.

SITE PLAN APPROVAL Sheet 11 of 29

FILE NUMBER: SPC-2017-0482C APPLICATION DATE: 11/27/2017
APPROVED BY COMMISSION ON _____ UNDER SECTION 142 OF CHAPTER 25-5 OF THE CITY OF AUSTIN CODE.
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PROJECT EXPIRATION DATE (ORD.#970905-A) _____ DWPZ _____ DDZ _____

Director, Development Review Department
RELEASE FOR GENERAL COMPLIANCE: _____ Zoning: _____
Rev. 1 _____ Correction 1 _____
Rev. 2 _____ Correction 2 _____
Rev. 3 _____ Correction 3 _____

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| BY | DATE | NO. | REVISION |
|---|---|---|---|
| | | | |

DESIGNED BY: NAB/CEA
DRAWN BY: JLC
CHECKED BY: PAB/TPB
APPROVED BY: SAS
DATE: MARCH, 2018

ATKINS
11801 DOMAIN BOULEVARD, SUITE 500
AUSTIN, TEXAS 78758 - (512) 327-6840
TBPE REG. NO. F-474

ZILKER PARK
AUSTIN CITY LIMITS STAGING AREA
SITE DEVELOPMENT PERMIT PLANS

GRADING PLAN

SHEET NO. 11
OF 29 SHEETS

FILE NO. 53691-08-GRAD
PROJECT NO. 100053691

SPC-2017-0482C

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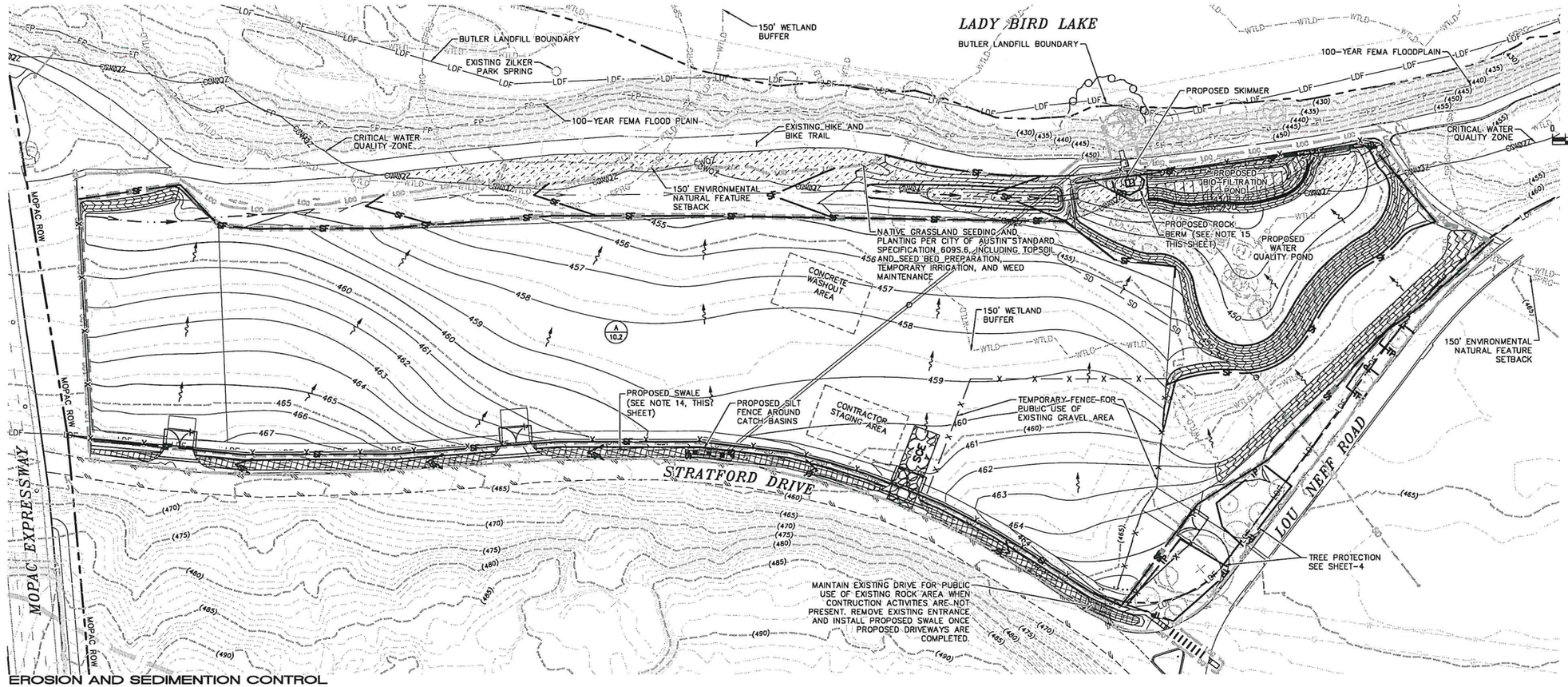


## EROSION AND SEDIMENTION CONTROL AND TREE PROTECTION NOTES

1. THE INFORMATION SHOWN ON THESE DRAWINGS INDICATING THE SIZE, TYPE, AND LOCATION OF ANY UNDERGROUND, SURFACE, AND AERIAL UTILITIES OR OTHER EXISTING FEATURES IS NOT GUARANTEED TO BE EXACT OR COMPLETE. THE CONTRACTOR SHALL CONTACT THE AUSTIN AREA "ONE CALL" SYSTEM (1-800-344-8377) FOR EXISTING UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO BEGINNING ANY EXCAVATION. THE CONTRACTOR SHALL ALSO BE FULLY RESPONSIBLE FOR FIELD VERIFYING LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITIES AFFECTED BY THIS PROJECT'S CONSTRUCTION, IN ORDER TO AVOID DAMAGING THOSE UTILITIES, AND SHALL IMMEDIATELY ARRANGE FOR REPAIR AND RESTORATION OF CONTRACTOR-DAMAGED UTILITIES, TO THE SATISFACTION OF THE UTILITY COMPANY, AT THE EXPENSE OF THE CONTRACTOR.
2. THE CONTRACTOR SHALL CONTACT ATKINS WITH ANY ITEMS ON THESE PLANS THAT NEED CLARIFICATION OR ANY FIELD CONDITIONS THAT ARE NOT CONSISTENT WITH THESE PLANS.
3. THE CONTRACTOR SHALL USE CARE AND NOT DAMAGE ANY EXISTING SIDEWALKS, DRIVES, STREETS, OR OTHER FEATURES, THAT ARE NOT PART OF THIS PROJECT. ANY CONTRACTOR DAMAGE SHALL BE REPAIRED TO THE OWNER'S SATISFACTION, AT THE CONTRACTOR'S EXPENSE.
4. DIGITAL FILES TO BE PROVIDED TO CONTRACTOR FOR HORIZONTAL LAYOUT.
5. REFER TO SHEET-2 FOR EROSION /SEDIMENTATION AND TREE PROTECTION NOTES.
6. REFER TO SHEET 4 FOR TREE PROTECTION DETAILS AND TREE TABLE.
7. REFER TO SHEET 19 FOR EROSION /SEDIMENTATION CONTROL DETAILS.
8. ADEQUATE BARRIERS BETWEEN ALL VEHICULAR USE AREAS AND ADJACENT LANDSCAPE AREAS, SUCH AS CONCRETE CURBS OR WHEEL STOPS, ARE REQUIRED AND MUST COMPLY WITH COA ENVIRONMENTAL CRITERIA MANUAL (ECM), SECTION 2.4.7, "PROTECTION OF LANDSCAPE AREAS."
9. THE ENVIRONMENTAL INSPECTOR HAS THE AUTHORITY TO ADD AND/OR MODIFY EROSION/SEDIMENTATION CONTROLS ON SITE TO KEEP THE PROJECT IN COMPLIANCE WITH THE CITY OF AUSTIN RULES AND REGULATIONS.
10. IF DISTURBED AREA IS NOT TO BE WORKED ON FOR MORE THAN 14 DAYS, DISTURBED AREA NEEDS TO BE STABILIZED BY REVEGETATION, MULCH, TARP OR REVEGETATION MATTING. (ECM 1.4.4.B.3, SECTION 5, I.)
11. THE CONTRACTOR SHALL UTILIZE DUST CONTROL MEASURES DURING SITE CONSTRUCTION SUCH AS IRRIGATION TRUCKS AND MULCHING AS PER ECM 1.4.5(A), OR AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
12. THE CONTRACTOR WILL CLEAN UP SPOILS THAT MIGRATE ONTO THE ROADS A MINIMUM OF ONCE DAILY. (ECM 1.4.4.D.4)
13. INITIATE FINAL SLOPE STABILIZATION WITH 7 DAYS OF ACHIEVING FINAL GRADE.
14. THE CONTRACTOR SHALL PLACE THE SEDIMENT FENCE IN THE PROPOSED SWALE UPON COMPLETION OF PROPOSED SWALE GRADING.
15. ROCK BERM TO BE INSTALLED PRIOR TO WORK. REMOVE AND REPLACE AS NEEDED FOR WORK IN AREA. WHEN REMOVED, INSTALL SILT FENCE OVER PIPE OPENING. PUMP OUT WATER WHEN NEEDED THRU SEDIMENT TRAP PER 624S-1 (SHEET 19) AND DEWATERING FILTER BAG PER DETAIL ON SHEET 19.
16. IN THE EVENT THAT DEWATERING IS NECESSARY, THE CONTRACTOR IS REQUIRED TO PREPARE A DEWATERING PLAN THAT WILL DESCRIBE HOW THE DEWATERING OPERATION WILL BE COMPLETED AND HOW THE PUMP EFFLUENT WILL BE MANAGED. REFERENCE THE SOILS REPORT FOR DISCUSSIONS OF GROUNDWATER CONSIDERATION. THE COST FOR DEWATERING OPERATIONS SHALL BE INCLUDED IN THE PRICE BID FOR THE STORM SEWER IMPROVEMENT. THE CONTRACTOR SHALL FURNISH AND OPERATE SUITABLE PUMPING EQUIPMENT OF SUCH CAPACITY ADEQUATE TO DEWATER THE TRENCH SHOULD WATER BE ENCOUNTERED. THE TRENCH SHALL BE SUFFICIENTLY DEWATERED SO THAT THE PLACEMENT OF BEDDING AND THE LAYING AND JOINING OF PIPE IS MADE ON FIRM, DRY GROUND. IF DEWATERING CANNOT PRODUCE ACCEPTABLE SUBGRADE, AND ONLY AS DIRECTED BY THE ENGINEER, UNSUITABLE MATERIALS SHALL BE REMOVED AND REPLACED PER CITY OF AUSTIN SPECIFICATIONS SECTION 510.3(9) AND SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS SEWER ITEMS. THE CONTRACTOR SHALL BE RESPONSIBLE TO PACE AND MAINTAIN THE NECESSARY SEDIMENT CONTROL MEASURES TO FILTER THE DEWATERING DISCHARGE. THE COST OF ANY DEWATERING OPERATIONS REQUIRED FOR THE CONSTRUCTION OF THE STORM SEWER SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS SEWER ITEMS NO SEPARATE PAYMENT SHALL BE MADE.
17. ALL EXISTING TREES TO BE REMOVED SHALL HAVE THEIR REMAINING STUMPS TO BE GRINDED DOWN TO A MINIMUM OF 18" BELOW GROUND SURFACE BEFORE EXCAVATION OF THE WATER QUALITY POND TO MINIMIZE DISTURBANCE OF THE LANDFILL CAP WHEN REMOVING TREE ROOTS AS PART OF THE EXCAVATION PROCESS. PLEASE CONTACT THE CITY OF AUSTIN TCEQ OFFICE AT (512) 239-1000 PRIOR TO COMMENCEMENT OF EXCAVATION.

## LEGEND

- 460 — PROPOSED CONTOUR
- 460 — EXISTING CONTOUR
- SF — SILT FENCE PER 642S-1 (SHEET 19)
- TP — TREE PROTECTION FENCE PER 610S-4 (SHEET 4)
- RB — RB — ROCK BERM PER 639S-1 (SHEET 19)
- LOC — LOC — LIMITS OF CONSTRUCTION/DISTURBANCE
- SCE — STABILIZED CONSTRUCTION ENTRANCE PER 641S-1 (SHEET 19)
- X — X — X — TEMPORARY CONSTRUCTION FENCE PER 610S-4 (SHEET 4)
- -CWQZ- EXISTING WATER QUALITY ZONE
- -LOC- LIMITS OF CONSTRUCTION
- -WTLD- EXISTING WETLANDS
- SOIL RETENTION BLANKET, CLASS I, TYPE A PER CITY OF AUSTIN ITEM NO. 605S
- GEOGRID PER CITY OF AUSTIN ITEM NO. 607S.4.8
- NATIVE GRASSLAND SEEDING
- TREE TO BE REMOVED
- TYPE I, TURBIDITY CURTAIN PER FIGURE 1.4.5.P.1., SHEET-19
- DEWATERING SKIMMER PER FIGURE 1.4.5.K.1. SHEET-19
- FLOW ARROW
- X 0.0 — DRAINAGE AREA NAME / DRAINAGE AREA TO EROSION CONTROL (AC)

CONTRACTOR HAS THE OPTION OF SUBSTITUTING SILT FENCE FOR MULCH SOCK PER COA STANDARD SPECIFICATIONS ITEM NO. 648S

LIMITS OF CONSTRUCTION AREA= 12.9 ACRES

THESE PLANS ARE COMPLETE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND IN COMPLIANCE WITH THE CITY OF AUSTIN DEVELOPMENT CODE.

SITE PLAN APPROVAL Sheet 12 of 29

FILE NUMBER: SPC-2017-0482C APPLICATION DATE: 11/27/2017
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Director, Development Review Department
RELEASE FOR GENERAL COMPLIANCE: _____ Zoning: _____
Rev. 1 _____ Correction 1 _____
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DESIGNED BY: NAB/CEA
DRAWN BY: JLC
CHECKED BY: PAB/TPB
APPROVED BY: SAS
DATE: MARCH, 2018

ATKINS
11801 DOMAIN BOULEVARD, SUITE 500
AUSTIN, TEXAS 78758 - (512) 327-6840
TBPE REG. NO. F-474

ZILKER PARK
AUSTIN CITY LIMITS STAGING AREA
SITE DEVELOPMENT PERMIT PLANS

EROSION AND SEDIMENT CONTROL PLAN

SHEET NO. 12
OF 29 SHEETS

FILE NO. 53691-09-EROS
PROJECT NO. 100053691

SPC-2017-0482C

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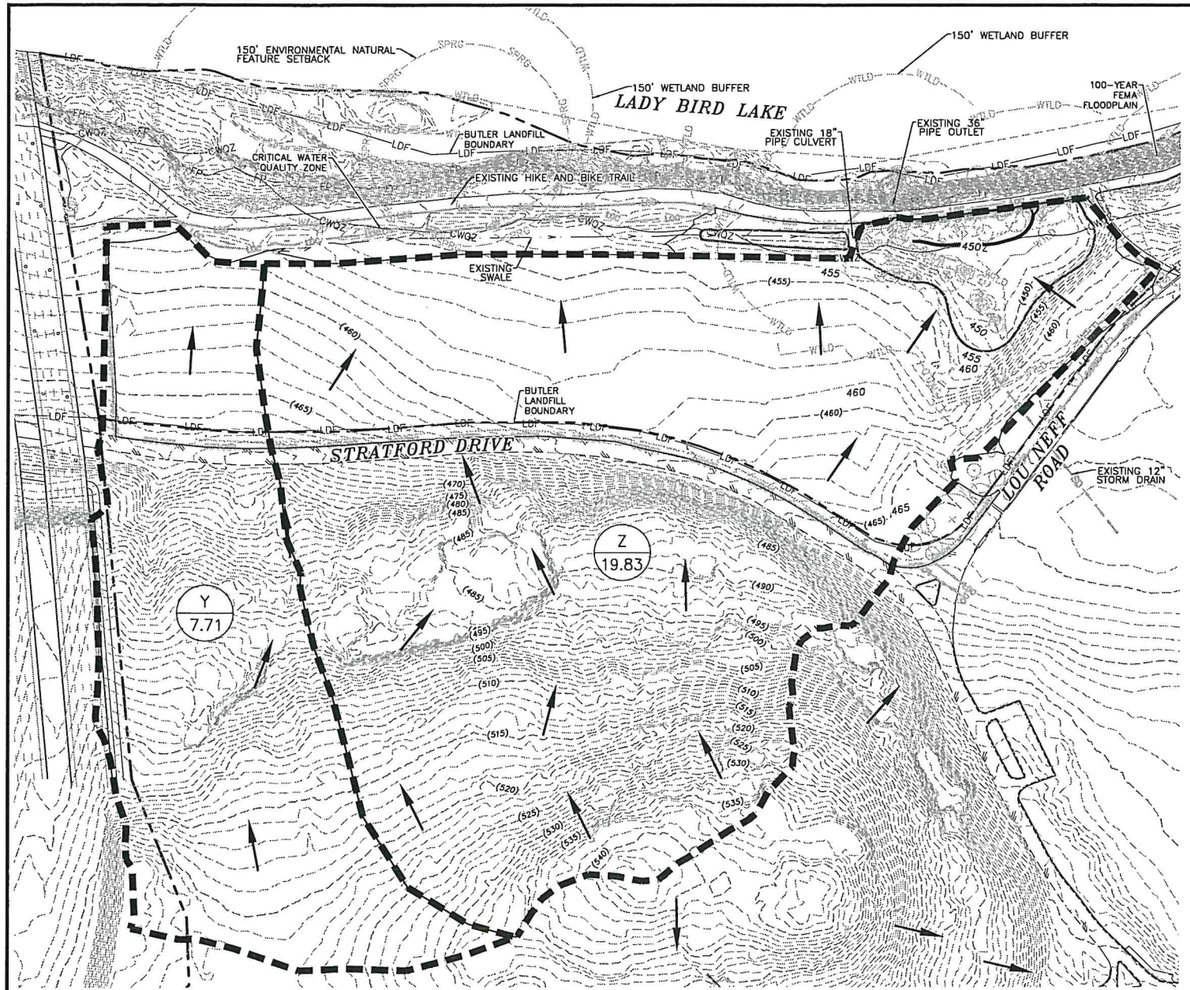


EXISTING DRAINAGE AREA MAP

0 50' 100' 200'

SCALE: 1" = 100'

## LEGEND

- X / 0.0 — DRAINAGE AREA NO. / DRAINAGE AREA ACRES
- DRAINAGE BOUNDARY
- FLOW DIRECTION
- -CWQZ- EXISTING WATER QUALITY ZONE
- -LOC- LIMITS OF CONSTRUCTION
- —WTLD— EXISTING WETLANDS

1. EXISTING DISCHARGE (Q, cfs) CALCULATIONS:

| Drainage Area (acres) | |
|---|---|
| (Y) | (Z) |
| 7.71 | 19.83 |

1a. Time of Concentration:

Notes:
1. Manning's "n" values are taken from Table 2-2, COA Drainage Criteria Manual
2. Sheet flow and shallow concentrated flow are assumed; no channelized flow occurs
3. P=3.44 inches (Table 2-3)

| | | |
|---|---|---|
| Tc=Ti(sheet) + Ti(shallow concentrated) | | (Eq. 2-2) |
| Sheet Flow: First 100 feet | Ti=0.42(nL)^0.8/((P)^0.5*s^0.4) | (Eq. 2-3) |
| Shallow Concentrated Flow | Ti=L/(60(16.1345)(s)^0.5) | (Eq. 2-4) |

| Basin A: | Manning's "n" | L (ft) | s (ft/ft) | Tc (min) |
|---|---|---|---|---|
| Sheet Flow: First 100 feet | 0.6 | 100 | 0.04 | 22 |
| Shallow Concentrated Flow | 0.6 | 1160 | 0.06 | 5 |
| | TOTAL | | | 27 |

| Basin B: | Manning's "n" | L (ft) | s (ft/ft) | Tc (min) |
|---|---|---|---|---|
| Sheet Flow: First 100 feet | 0.6 | 100 | 0.06 | 18 |
| Shallow Concentrated Flow | 0.6 | 860 | 0.10 | 3 |
| | TOTAL | | | 21 |

1b. Rainfall Intensities:

Rainfall Intensity: i=a/(Tc+b)^c (Eq. 2-8)

Intensity Duration Frequency Curve Coefficients (Table 2-5)

| Freq (yrs) | a | b | c |
|---|---|---|---|
| 2 | 54.767 | 11.051 | 0.8116 |
| 5 | 62.881 | 10.477 | 0.7820 |
| 10 | 70.820 | 10.396 | 0.7725 |
| 25 | 82.936 | 10.746 | 0.7634 |
| 50 | 100.600 | 12.172 | 0.7712 |
| 100 | 118.300 | 13.185 | 0.7736 |
| 500 | 188.000 | 17.233 | 0.7822 |

Intesities for Frequencies based on each Drainage Basin

| Freq (yrs) | Y | Z |
|---|---|---|
| 2 | 2.88 | 3.26 |
| 5 | 3.73 | 4.22 |
| 10 | 4.35 | 4.91 |
| 25 | 5.23 | 5.88 |
| 50 | 5.99 | 6.72 |
| 100 | 6.85 | 7.65 |
| 500 | 9.77 | 10.81 |

1c. Composite Runoff Coefficients for Drainage Basins: (Table 2-1)

| Basin Y | | C | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Frequency (yrs) | | | | | | |
| | A (acres) | 2 | 5 | 10 | 25 | 50 | 100 | 500 |
| Forest Woodland (steep) | 5.96 | 0.35 | 0.39 | 0.41 | 0.45 | 0.48 | 0.52 | 0.58 |
| Asphaltic | 0.14 | 0.73 | 0.77 | 0.81 | 0.86 | 0.90 | 0.95 | 1.00 |
| Grass Areas (fair & avg) | 1.61 | 0.33 | 0.36 | 0.38 | 0.42 | 0.45 | 0.49 | 0.56 |
| TOTAL | 7.71 | 0.35 | 0.39 | 0.41 | 0.45 | 0.48 | 0.52 | 0.59 |

| Basin Z | | C | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Frequency (yrs) | | | | | | |
| | A (acres) | 2 | 5 | 10 | 25 | 50 | 100 | 500 |
| Forest Woodland (steep) | 10.05 | 0.35 | 0.39 | 0.41 | 0.45 | 0.48 | 0.52 | 0.58 |
| Asphaltic | 0.54 | 0.73 | 0.77 | 0.81 | 0.86 | 0.90 | 0.95 | 1.00 |
| Grass Areas (fair & avg) | 9.24 | 0.33 | 0.36 | 0.38 | 0.42 | 0.45 | 0.49 | 0.56 |
| TOTAL | 19.83 | 0.35 | 0.39 | 0.41 | 0.45 | 0.48 | 0.52 | 0.59 |

1d. Flow Rates

Flow Rate (Q, cfs): Q=C*i*A (Eq. 2-1)

Basin Flow Rates for Various Frequencies (cfs)

| Basin | 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|---|
| Y | 7.84 | 11.25 | 13.79 | 18.19 | 22.24 | 27.53 | 44.27 |
| Z | 22.70 | 32.30 | 39.61 | 52.16 | 63.58 | 78.56 | 126.83 |

## EXISTING CONDITIONS DRAINAGE CALCULATIONS

THESE PLANS ARE COMPLETE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND IN COMPLIANCE WITH THE CITY OF AUSTIN DEVELOPMENT CODE.

SITE PLAN APPROVAL Sheet 13 of 29

FILE NUMBER: SPC-2017-0482C APPLICATION DATE: 11/27/2017

APPROVED BY COMMISSION ON _____ UNDER SECTION: 142 OF CHAPTER 25-5 OF THE CITY OF AUSTIN CODE.

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PROJECT EXPIRATION DATE (ORD.#970905-A) _____ DWPZ ____ DDZ ____

Director, Development Review Department

RELEASE FOR GENERAL COMPLIANCE: _____ Zoning: _____

Rev. 1 _____ Correction 1 _____

Rev. 2 _____ Correction 2 _____

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CHECKED BY: PAB/TPB
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AUSTIN, TEXAS 78758 - (512) 327-6840
TBPE REG. NO. F-474

ZILKER PARK
AUSTIN CITY LIMITS STAGING AREA
SITE DEVELOPMENT PERMIT PLANS

EXISTING DRAINAGE AREA MAP AND CALCULATIONS

SHEET NO. 13

OF 29 SHEETS

FILE NO. 53691-10-DRAN
PROJECT NO. 100053691

SPC-2017-0482C

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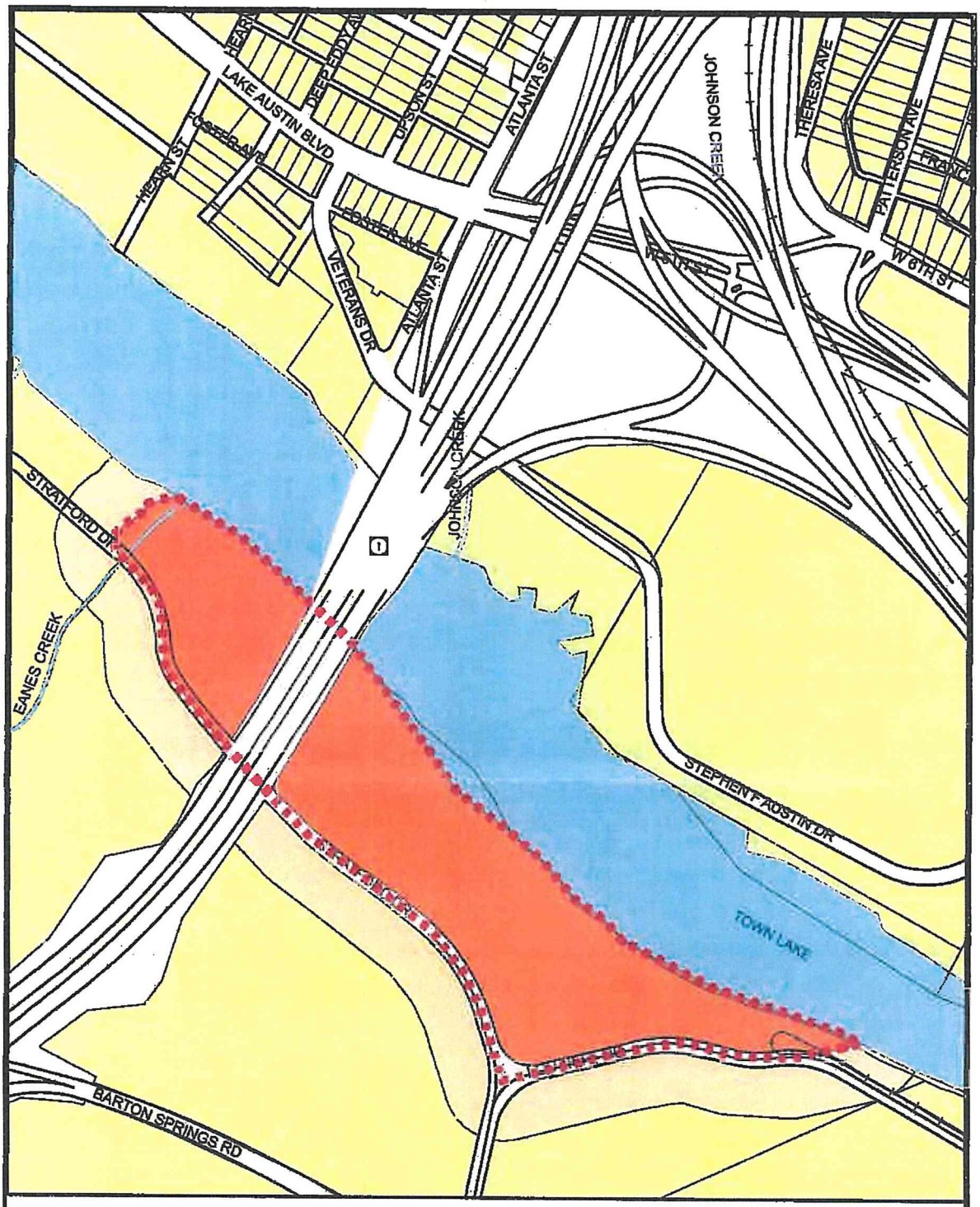
**EXTENSION OF ATTACHMENT D**

**(The following sheets provide justification for an exception to a portion of the Geologic Assessment)**




# #7. Butler

0 250 500 1,000 Feet

**Landfill Features**
- Estimated Landfill Boundary
- Landfill
- Landfill Buffer

**City of Austin Jurisdiction**
- FULL
- LTD
- 2 MILE
- 5 MILE

- Lot Lines
- Roads
- Water features

**Watershed Protection Development Review**

Watershed Protection & Development Review Department, The City of Austin produced this map for the sole purpose of use as a work resource and as an estimated boundary of landfills in & around Austin. The City of Austin does not warrant the map &/or information regarding its accuracy or completeness.

Reproduction is not permitted without permission from the City of Austin-Watershed Protection & Development Review Department.

Date 09.20.2006

**3.7 #7, BUTLER**

Location: The Butler landfill is owned by the City of Austin and is located in south Austin along the shore of Town Lake and the MoPac bridge.

Prior Use: Stockpiles of fill material and four 55-gallon drums of what appeared to be monitoring well purge water were stored in the area west of the bridge. No evidence of illegal dumping was evident.

Groundwater: Since 1984, the COA has conducted field investigations and a risk assessment for groundwater. Three monitoring wells have been installed; 2 east of the MoPac bridge, 1 west of the MoPac bridge.

Remediation: Design of erosion control improvements and remediation of the exposed landfill waste at Eanes Creek occurred in 2004, with construction scheduled to begin in 2005.

Current Conditions: Current conditions associated with this site may pose a current or future concern to human health or the environment, based on the following factors:

- proximity of recreational uses to landfill,
- exposed landfill materials due to erosion at the stream and river banks,
- unrestricted public access.

Based on the actions already being undertaken by the COA at this site, no additional actions have been recommended.

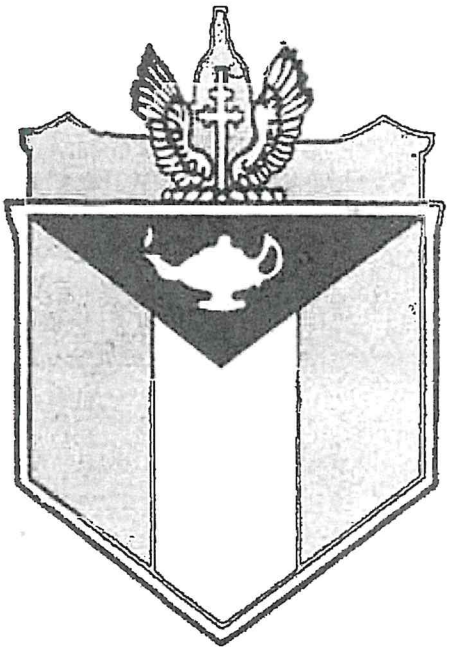
Reference: Information in this fact sheet comes from the following:


1. Geomatrix Consultants. November 2004. *2004 Supplemental Assessment to Landfills in the Vicinity of Austin, TX.* Prepared for City of Austin Public Works Department.
2. Underground Resource Management, Inc. November 1984. *Landfills in the Vicinity of Austin, TX.* Prepared for the City of Austin.

# LANDFILLS IN THE VICINITY OF AUSTIN, TEXAS

Prepared for

THE CITY OF AUSTIN
Austin, Texas



Prepared by
Underground Resource Management, Inc.
Austin, Texas

# 4. TCEQ-0602 Temporary Stormwater Section

# Temporary Stormwater Section

**Texas Commission on Environmental Quality**

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b)(4)(A), (B), (D)(I) and (G); Effective June 1, 1999

***To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.***

***Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.***

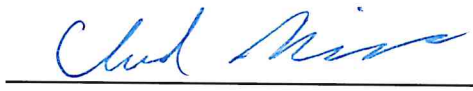
## Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Temporary Stormwater Section** is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

Print Name of Customer/Agent: Chad Richards, PE

Date: January 26, 2018

Signature of Customer/Agent:



**Regulated Entity Name:** City of Austin Zilker Park

## Project Information

## Potential Sources of Contamination

*Examples: Fuel storage and use, chemical storage and use, use of asphaltic products, construction vehicles tracking onto public roads, and existing solid waste.*

1. Fuels for construction equipment and hazardous substances which will be used during construction:

   ☐ The following fuels and/or hazardous substances will be stored on the site: _____

   These fuels and/or hazardous substances will be stored in:

   ☐ Aboveground storage tanks with a cumulative storage capacity of less than 250 gallons will be stored on the site for less than one (1) year.

☐ Aboveground storage tanks with a cumulative storage capacity between 250 gallons and 499 gallons will be stored on the site for less than one (1) year.

☐ Aboveground storage tanks with a cumulative storage capacity of 500 gallons or more will be stored on the site. An Aboveground Storage Tank Facility Plan application must be submitted to the appropriate regional office of the TCEQ prior to moving the tanks onto the project.

☒ Fuels and hazardous substances will not be stored on the site.

2. ☒ **Attachment A - Spill Response Actions**. A site specific description of the measures to be taken to contain any spill of hydrocarbons or hazardous substances is attached.

3. ☒ Temporary aboveground storage tank systems of 250 gallons or more cumulative storage capacity must be located a minimum horizontal distance of 150 feet from any domestic, industrial, irrigation, or public water supply well, or other sensitive feature.

4. ☒ **Attachment B - Potential Sources of Contamination**. A description of any activities or processes which may be a potential source of contamination affecting surface water quality is attached.

## *Sequence of Construction*

5. ☒ **Attachment C - Sequence of Major Activities**. A description of the sequence of major activities which will disturb soils for major portions of the site (grubbing, excavation, grading, utilities, and infrastructure installation) is attached.

   ☒ For each activity described, an estimate (in acres) of the total area of the site to be disturbed by each activity is given.

   ☒ For each activity described, include a description of appropriate temporary control measures and the general timing (or sequence) during the construction process that the measures will be implemented.

6. ☒ Name the receiving water(s) at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project: Lady Bird Lake

## *Temporary Best Management Practices (TBMPs)*

*Erosion control examples: tree protection, interceptor swales, level spreaders, outlet stabilization, blankets or matting, mulch, and sod. Sediment control examples: stabilized construction exit, silt fence, filter dikes, rock berms, buffer strips, sediment traps, and sediment basins. Please refer to the Technical Guidance Manual for guidelines and specifications. All structural BMPs must be shown on the site plan.*

7. ☒ **Attachment D – Temporary Best Management Practices and Measures**. TBMPs and measures will prevent pollution of surface water, groundwater, and stormwater. The construction-phase BMPs for erosion and sediment controls have been designed to retain sediment on site to the extent practicable. The following information is attached:

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

☒ A description of how BMPs and measures will prevent pollution of surface water or groundwater that originates on-site or flows off site, including pollution caused by contaminated stormwater runoff from the site.

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

☒ A description of how, to the maximum extent practicable, BMPs and measures will maintain flow to naturally-occurring sensitive features identified in either the geologic assessment, TCEQ inspections, or during excavation, blasting, or construction.

8. ☒ The temporary sealing of a naturally-occurring sensitive feature which accepts recharge to the Edwards Aquifer as a temporary pollution abatement measure during active construction should be avoided.

☐ **Attachment E - Request to Temporarily Seal a Feature**. A request to temporarily seal a feature is attached. The request includes justification as to why no reasonable and practicable alternative exists for each feature.

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

9. ☒ **Attachment F - Structural Practices**. A description of the structural practices that will be used to divert flows away from exposed soils, to store flows, or to otherwise limit runoff discharge of pollutants from exposed areas of the site is attached. Placement of structural practices in floodplains has been avoided.

10. ☒ **Attachment G - Drainage Area Map**. A drainage area map supporting the following requirements is attached:

☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin will be provided.

☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a smaller sediment basin and/or sediment trap(s) will be used.

☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin or other equivalent controls are not attainable, but other TBMPs and measures will be used in combination to protect down slope and side slope boundaries of the construction area.

☒ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. A smaller sediment basin and/or sediment trap(s) will be used in combination with other erosion and sediment controls within each disturbed drainage area.

☐ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. Erosion and sediment controls other than sediment basins or sediment traps within each disturbed drainage area will be used.

11. ☐ **Attachment H - Temporary Sediment Pond(s) Plans and Calculations**. Temporary sediment pond or basin construction plans and design calculations for a proposed temporary BMP or measure have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information must be signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed temporary BMPs and measures are attached.

☒ N/A

12. ☒ **Attachment I - Inspection and Maintenance for BMPs.** A plan for the inspection of each temporary BMP(s) and measure(s) and for their timely maintenance, repairs, and, if necessary, retrofit is attached. A description of the documentation procedures, recordkeeping practices, and inspection frequency are included in the plan and are specific to the site and/or BMP.

13. ☒ All control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections by the applicant or the executive director, or other information indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations.

14. ☒ If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain).

15. ☒ Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50%. A permanent stake will be provided that can indicate when the sediment occupies 50% of the basin volume.

16. ☒ Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).

## *Soil Stabilization Practices*

*Examples: establishment of temporary vegetation, establishment of permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, or preservation of mature vegetation.*

17. ☒ **Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices**. A schedule of the interim and permanent soil stabilization practices for the site is attached.

18. ☒ Records must be kept at the site of the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.

19. ☒ Stabilization practices must be initiated as soon as practicable where construction activities have temporarily or permanently ceased.

## *Administrative Information*

20. ☒ All structural controls will be inspected and maintained according to the submitted and approved operation and maintenance plan for the project.

21. ☒ If any geologic or manmade features, such as caves, faults, sinkholes, etc., are discovered, all regulated activities near the feature will be immediately suspended. The appropriate TCEQ Regional Office shall be immediately notified. Regulated activities must cease and not continue until the TCEQ has reviewed and approved the methods proposed to protect the aquifer from any adverse impacts.

22. ☒ Silt fences, diversion berms, and other temporary erosion and sediment controls will be constructed and maintained as appropriate to prevent pollutants from entering sensitive features discovered during construction.

# Attachment A: Spill Response Actions

The construction contractor will be capable of responding at any time to a spill. The contractor will have the tools available to dike, boom, or block off inlets to contain and prevent a spill that may occur on the site. The contractor will have contact information available for additional contractors to support larger spills.

"Reportable spills" will be reported to the TCEQ at the Austin Region Call Number 512-339-2929 or Spill Reporting [24 Hour] at 800-832-8224 within 24 hours of the spill event. A reportable spill is one that meets any of the following criteria:

- 25 gallons of oil, fuel, and other hydrocarbon onto the ground.
- Any amount of hydrocarbon and/or crude oil that causes a visible sheen on waters of the United States including, but not limited to, stormwater runoff.

# Attachment B: Potential Sources of Contamination

The anticipated primary potential pollutant is sediment. Other potential pollutants are vehicle fluids, trash, and bacteria.

Potential sources of sediment to stormwater runoff:

- Soil disturbing activities will include clearing, preparation of the ROW, grading, and excavation for inlets, storm sewers, swales, utilities, and the water quality pond.

Potential pollutant and sources, other than sediment, to stormwater runoff:

| Material | Storm Water Pollutants | Location |
|---|---|---|
| Lubricant | Hydrocarbons | Equipment parking area |
| Fuel | Hydrocarbons | Equipment parking area |
| Coolant | Organic compounds | Equipment parking area |
| Trash | Floatables | Project ROW |
| Portable toilet fluids | Bacteria | Break station |
| Cleaning supplies/solvents | Detergents, organic compounds | Equipment washing areas |
| Fertilizers | Nutrients | Storage areas/seeding locations |
| Wood | Floatables | Fence Lines |

Any unanticipated hazardous materials and/or petroleum contamination encountered during construction within the subject property will be handled according to applicable rules and regulations.

Multiple utility lines are located within the project area. Coordination with the owner/operators of these utilities will be necessary prior to construction of the project.

# Attachment C: Sequence of Major Activities

1. The environmental project manager or site supervisor must contact the development services department, environmental inspection, at 512-974-2278, 72 hours prior to the scheduled date of the required onsite pre-construction meeting (no site acreage disturbed).
2. Send Notice of Intent to the Texas Commission on Environmental Quality (TCEQ) at least 48 hours prior to commencement of construction (no site acreage disturbed).
3. The contractor shall post site notice at the project site and install erosion/sedimentation controls (rock berms, sediment traps, silt fences, a stabilized construction entrance/exit, etc.), tree/natural area protective fencing, and conduct "pre-construction" tree fertilization (if applicable) prior to any site preparation work (no site acreage disturbed).
4. The erosion sedimentation control plan (ESC) and stormwater pollution prevention plan (SWPPP) will be followed by the environmental project manager, site supervisor, the designated responsible party, and the general contractor. The temporary erosion and sedimentation controls will be revised (if needed) to comply with city inspectors' directives, and revised construction schedule relative to the water quality plan requirements and the erosion plan (no site acreage disturbed).
5. The pond(s) will be rough graded at 100% proposed capacity (approximately 0.8 acres disturbed). The permanent outlet or a temporary outlet must be constructed prior to the development of embankment or excavation that leads to ponding. The outlet system will contain a sump, outlet (a surface outlet during the construction phase), and an emergency spillway. The outlet system shall be protected from erosion and will be maintained throughout the course of construction until installation of the permanent water quality pond.
6. Inspect and maintain the temporary erosion and sedimentation controls (no site acreage disturbed).
7. Begin site clearing/construction activities (no more than 10 acres will be disturbed at any time).
8. In the Barton Springs Zone, the environmental project manager/site supervisor will coordinate a mid-construction conference to coordinate changes in the construction schedule and to evaluate the effectiveness of the erosion control plan (no site acreage disturbed).
9. The permanent water quality pond will be cleaned out and filter media will be installed prior to/concurrently with revegetation of site (no additional acreage disturbed).
10. Complete construction, begin revegetating the site, and start the installation of landscaping (no additional acreage disturbed).
11. Upon completion of the site construction and revegetation, the design engineer will submit an engineer's letter of concurrence bearing their engineer's seal, their signature, and date to the development services department indicating that construction and revegetation is complete and in substantial compliance with the approved plans. A final inspection will be scheduled by the appropriate city inspector (no additional acreage disturbed).
12. After landscape installation, the landscape architect will submit a letter of concurrence to the development services department indicating that the landscaping is complete and in substantial conformity with the approved plans. A final inspection will be scheduled by the appropriate city inspector (no additional acreage disturbed).
13. After the final inspections have been conducted and approved by the appropriate city inspector, the temporary erosion and sedimentation controls will be removed. Any necessary revegetation resulting from the removal of the control will be completed. Maintenance and rehabilitation of the water quality pond is to be performed (no additional acreage disturbed).

# Attachment D: Temporary Best Management Practices and Measures

The following temporary BMPs and measures will prevent pollution of surface water or groundwater that originates onsite or flows offsite, including pollution caused by contaminated stormwater runoff from the site:

- Temporary silt fences
- Tree protection fences
- Temporary Rock Berms
- Stabilized construction entrance and exit
- Temporary storm inlet sediment traps
- Construction sequencing to reduce disturbance
- Temporary dewatering filter bags
- Temporary vegetative stabilization

Details pertaining to quantities, placement, maintenance, and inspection of the temporary BMPs and practices are outlined in the Construction Plan Set.

The temporary BMPs described above will prevent pollutants from entering surface streams or the aquifer. With the project site being located on top of an existing landfill and with a granted exception, a geologic assessment was not performed. If any subsurface voids are encountered during site development, work will halt immediately so that a geologist may assess the potential for the void(s) to contribute to the Edwards Aquifer.

# Attachment F: Structural Practices

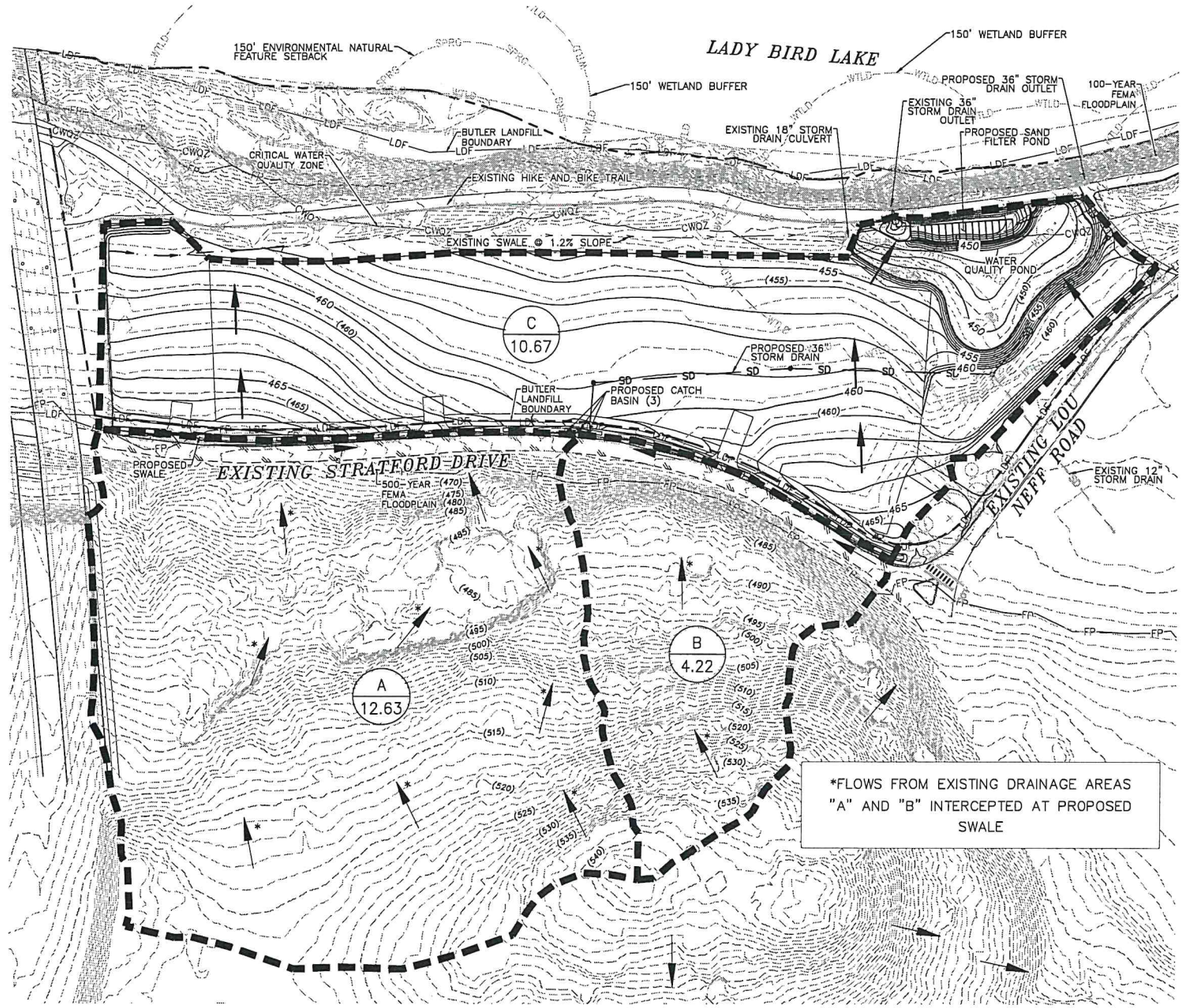
Three catch basins will be located in the proposed swale that intercepts stormwater runoff from offsite. A silt fence will be provided around the catch basins to remove sediment from runoff from overland flows prior to entering the stormwater conveyance. Silt fence will also be used to remove sediments from runoff from overland flows prior to and within a swale draining the project site and around the proposed water quality pond. Rock berms will be utilized to slow discharges downstream of the two 36-inch outfall pipes and upstream of the water quality pond outfall pipe within the pond.

If necessary, a dewatering will occur utilizing a sediment trap and dewatering filter bag.

There will not be any areas greater than 10 acres disturbed at one time within a common drainage area.

**Attachment G**

**Drainage Area Map**




PROPOSED DRAINAGE AREA MAP

0 50' 100' 200'

SCALE: 1" = 100'

## LEGEND

- X / 0.0 — DRAINAGE AREA NO. / DRAINAGE AREA ACRES
- DRAINAGE BOUNDARY
- FLOW DIRECTION
- -CWQZ- EXISTING WATER QUALITY ZONE
- -LOC- LIMITS OF CONSTRUCTION
- -WTLD- EXISTING WETLANDS

1. DESIGN DISCHARGE (Q, cfs) CALCULATIONS:

Drainage Area (acres)

| (A) | (B) | (C) |
|---|---|---|
| 12.63 | 4.22 | 10.67 |

1a. Time of Concentration:

Notes:
1. Manning's "n" values are taken from Table 2-2, COA Drainage Criteria Manual
2. Sheet flow and shallow concentrated flow are assumed; no channelized flow occurs
3. P=3.44 inches (Table 2-3)

Tc=Ti(sheet) + Tt(shallow concentrated) (Eq. 2-2)
Sheet Flow: First 100 feet Ti=(0.42(nL)^0.8/((P)^0.5*s^0.4) (Eq. 2-3)
Shallow Concentrated Flow Tt=L/(60(16.1345(s)^0.5) (Eq. 2-4)

| Basin A: | Manning's "n" | L (ft) | s (ft/ft) | Tc (min) |
|---|---|---|---|---|
| Sheet Flow: First 100 feet | 0.6 | 100 | 0.05 | 20 |
| Shallow Concentrated Flow | 0.6 | 690 | 0.11 | 2 |
| | TOTAL | | | 22 |

| Basin B: | Manning's "n" | L (ft) | s (ft/ft) | Tc (min) |
|---|---|---|---|---|
| Sheet Flow: First 100 feet | 0.6 | 100 | 0.05 | 20 |
| Shallow Concentrated Flow | 0.6 | 611 | 0.13 | 2 |
| | TOTAL | | | 21 |

| Basin C: | Manning's "n" | L (ft) | s (ft/ft) | Tc (min) |
|---|---|---|---|---|
| Sheet Flow: First 100 feet | 0.15 | 100 | 0.02 | 9 |
| Shallow Concentrated Flow | 0.15 | 366 | 0.03 | 2 |
| | TOTAL | | | 12 |

1b. Rainfall Intensities:
Rainfall Intensity: i=a/(Tc+b)^c (Eq. 2-8)

Intensity Duration Frequency Curve Coefficients (Table 2-5)

| Freq (yrs) | a | b | c |
|---|---|---|---|
| 2 | 54.767 | 11.051 | 0.8116 |
| 5 | 62.981 | 10.477 | 0.7820 |
| 10 | 70.820 | 10.306 | 0.7725 |
| 25 | 82.936 | 10.746 | 0.7634 |
| 50 | 100.800 | 12.172 | 0.7712 |
| 100 | 118.300 | 13.185 | 0.7736 |
| 500 | 168.000 | 17.233 | 0.7822 |

Intesities for Frequencies based on each Drainage Basin

| Freq (yrs) | A | B | C |
|---|---|---|---|
| 2 | 3.21 | 3.29 | 4.36 |
| 5 | 4.16 | 4.29 | 5.61 |
| 10 | 4.84 | 4.89 | 6.51 |
| 25 | 5.80 | 5.86 | 7.75 |
| 50 | 6.63 | 6.69 | 8.75 |
| 100 | 7.55 | 7.62 | 9.88 |
| 500 | 10.69 | 10.77 | 13.57 |

1c. Composite Runoff Coefficients for Drainage Basins: (Table 2-1)

Basin A

| | | C | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Frequency (yrs) | | | | | | |
| | A (acres) | 2 | 5 | 10 | 25 | 50 | 100 | 500 |
| Forest Woodland (steep) | 11.31 | 0.35 | 0.39 | 0.41 | 0.45 | 0.48 | 0.52 | 0.58 |
| Asphaltic | 0.48 | 0.73 | 0.77 | 0.81 | 0.86 | 0.90 | 0.95 | 1.00 |
| Grass Areas (fair & avg) | 0.84 | 0.33 | 0.36 | 0.38 | 0.42 | 0.45 | 0.49 | 0.58 |
| TOTAL | 12.63 | 0.36 | 0.40 | 0.42 | 0.46 | 0.49 | 0.53 | 0.60 |

Basin B

| | | C | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Frequency (yrs) | | | | | | |
| | A (acres) | 2 | 5 | 10 | 25 | 50 | 100 | 500 |
| Forest Woodland (steep) | 3.46 | 0.35 | 0.39 | 0.41 | 0.45 | 0.48 | 0.52 | 0.58 |
| Asphaltic | 0.24 | 0.73 | 0.77 | 0.81 | 0.86 | 0.90 | 0.95 | 1.00 |
| Grass Areas (fair & avg) | 0.53 | 0.33 | 0.36 | 0.38 | 0.42 | 0.45 | 0.49 | 0.58 |
| TOTAL | 4.22 | 0.37 | 0.41 | 0.43 | 0.47 | 0.50 | 0.54 | 0.60 |

Basin C

| | | C | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Frequency (yrs) | | | | | | |
| | A (acres) | 2 | 5 | 10 | 25 | 50 | 100 | 500 |
| Asphaltic | 7.24 | 0.73 | 0.77 | 0.81 | 0.86 | 0.90 | 0.95 | 1.00 |
| Grass Areas (fair & avg) | 3.43 | 0.33 | 0.36 | 0.38 | 0.42 | 0.45 | 0.49 | 0.58 |
| TOTAL | 10.67 | 0.60 | 0.64 | 0.67 | 0.72 | 0.76 | 0.80 | 0.86 |

1d. Flow Rates
Flow Rate (Q, cfs): Q=C*I*A (Eq. 2-1)

Basin Flow Rates for Various Frequencies (cfs)

| Basin | 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|---|
| A | 14.74 | 21.13 | 25.87 | 33.97 | 41.35 | 50.98 | 80.45 |
| B | 5.06 | 7.22 | 8.85 | 11.60 | 14.11 | 17.39 | 27.45 |
| C | 27.96 | 38.18 | 46.67 | 59.41 | 70.49 | 84.58 | 125.25 |
| A+B (swale) | 19.80 | 28.35 | 34.72 | 45.58 | 55.46 | 68.37 | 107.91 |

2. PIPE DIMENSIONS

| Pipe | 25-Yr Flow Rate (cfs) | Manning's "n" | Slope (ft/ft) | Size (in) | Normal Depth (ft) | Length (ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|
| West Trench Drain | 5.25 | 0.013 | 0.0040 | 24 x 12 | 0.59 | 48 | 6.78 |
| Mid Trench Drain | 22.04 | 0.013 | 0.0217 | 30 x 12 | 1.35 | 62 | 9.79 |
| East Trench Drain | 9.46 | 0.013 | 0.0120 | 24 x 12 | 0.86 | 56 | 7.35 |
| Storm Drain | 45.58 | 0.013 | 0.0042 | 36 | 2.64 | 1061 | 6.82 |

## PROPOSED CONDITIONS DRAINAGE CALCULATIONS

## DETENTION NOTE

PROJECT IS ON SHORE OF LADY BIRD LAKE SO DETENTION IS NOT PROPOSED. THERE IS NO DOWNSTREAM PROPERTY TO PROTECT.

THESE PLANS ARE COMPLETE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND IN COMPLIANCE WITH THE CITY OF AUSTIN DEVELOPMENT CODE.

SITE PLAN APPROVAL Sheet 14 of 21

FILE NUMBER: SP-XXXX-XXXXX APPLICATION DATE: XX/XX/XX
APPROVED BY COMMISSION ON N/A UNDER SECTION XXX OF CHAPTER XX-X OF THE CITY OF AUSTIN CODE.
EXPIRATION DATE (25-5-81, LDC) CASE MANAGER XXXXXXXXXX
PROJECT EXPIRATION DATE (ORD.#970905-A) DWPZ DDZ

Director, Development Review Department
RELEASE FOR GENERAL COMPLIANCE: Zoning:
Rev. 1 Correction 1
Rev. 2 Correction 2
Rev. 3 Correction 3

Final plat must be recorded by the Project Expiration Date, if applicable. Subsequent Site Plans which do not comply with the Code current at the time of filing, and all required Building Permits and/or a notice of construction (if a building permit is not required), must also be approved prior to the Project Expiration Date.

| NO. | REVISION | BY | DATE |
|---|---|---|---|

DESIGNED BY: NAB/CEA
DRAWN BY: JLC
CHECKED BY: PAB/TPB
APPROVED BY: SAS
DATE: JANUARY, 2018

ATKINS
11601 DOMAIN BOULEVARD, SUITE 500
AUSTIN, TEXAS 78758 • (512) 327-6840
TBPE REG. NO. F-474

STATE OF TEXAS — 50378 — REGISTERED PROFESSIONAL — 01/03/18

ZILKER PARK
AUSTIN CITY LIMITS STAGING AREA
SITE DEVELOPMENT PERMIT PLANS

PROPOSED DRAINAGE AREA MAP AND CALCULATIONS

SHEET NO. 14
OF 21 SHEETS
FILE NO. 53691-10-DRAN
PROJECT NO. 100053691

SP-XXXX-XXXXX

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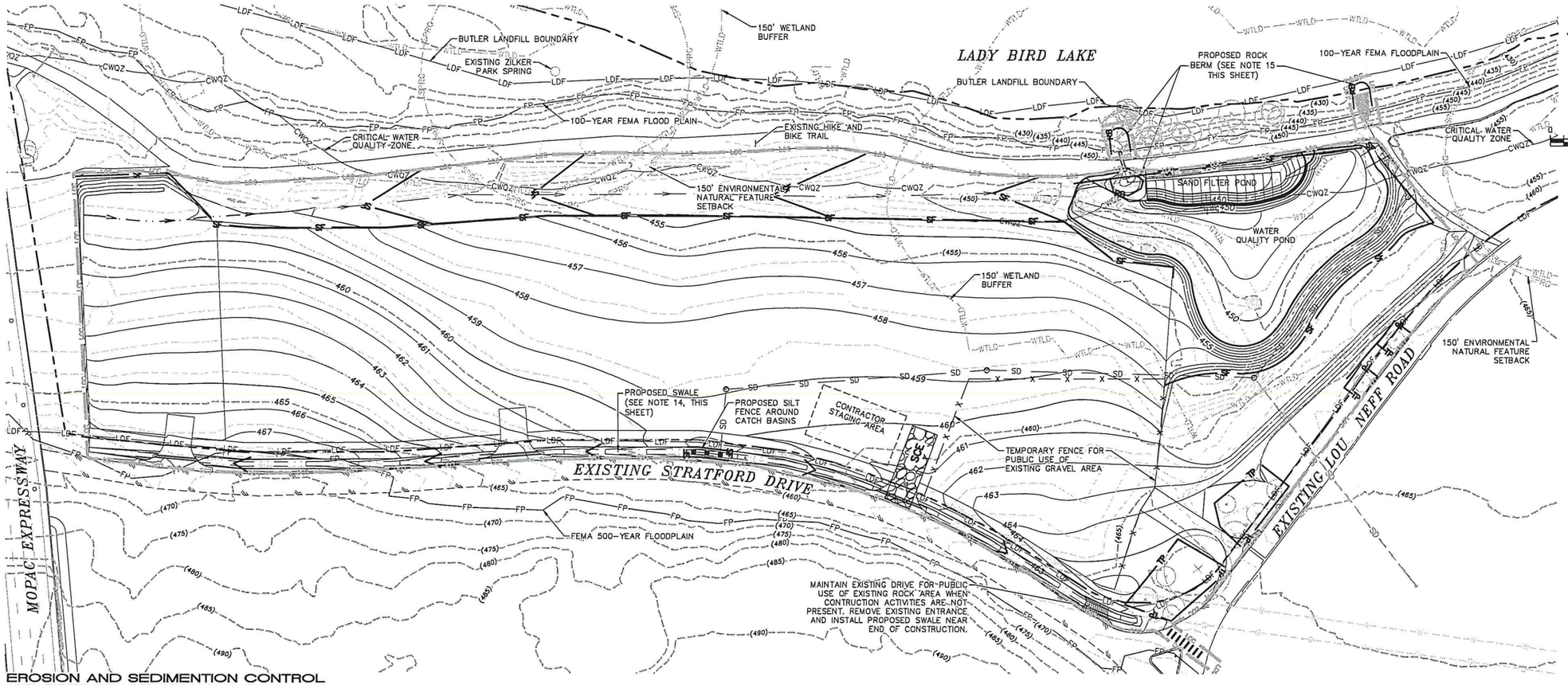


## EROSION AND SEDIMENTION CONTROL AND TREE PROTECTION NOTES

1. THE INFORMATION SHOWN ON THESE DRAWINGS INDICATING THE SIZE, TYPE, AND LOCATION OF ANY UNDERGROUND, SURFACE, AND AERIAL UTILITIES OR OTHER EXISTING FEATURES IS NOT GUARANTEED TO BE EXACT OR COMPLETE. THE CONTRACTOR SHALL CONTACT THE AUSTIN AREA "ONE CALL" SYSTEM (1-800-344-8377) FOR EXISTING UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO BEGINNING ANY EXCAVATION. THE CONTRACTOR SHALL ALSO BE FULLY RESPONSIBLE FOR FIELD VERIFYING LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITIES AFFECTED BY THIS PROJECT'S CONSTRUCTION, IN ORDER TO AVOID DAMAGING THOSE UTILITIES, AND SHALL IMMEDIATELY ARRANGE FOR REPAIR AND RESTORATION OF CONTRACTOR-DAMAGED UTILITIES, TO THE SATISFACTION OF THE UTILITY COMPANY, AT THE EXPENSE OF THE CONTRACTOR.
2. THE CONTRACTOR SHALL CONTACT ATKINS WITH ANY ITEMS ON THESE PLANS THAT NEED CLARIFICATION OR ANY FIELD CONDITIONS THAT ARE NOT CONSISTENT WITH THESE PLANS.
3. THE CONTRACTOR SHALL USE CARE AND NOT DAMAGE ANY EXISTING SIDEWALKS, DRIVES, STREETS, OR OTHER FEATURES, THAT ARE NOT PART OF THIS PROJECT. ANY CONTRACTOR DAMAGE SHALL BE REPAIRED TO THE OWNER'S SATISFACTION, AT THE CONTRACTOR'S EXPENSE.
4. DIGITAL FILES TO BE PROVIDED TO CONTRACTOR FOR HORIZONTAL LAYOUT.
5. REFER TO SHEET-2 FOR EROSION /SEDIMENTATION AND TREE PROTECTION NOTES.
6. REFER TO SHEET 4 FOR TREE PROTECTION DETAILS
7. REFER TO SHEET 18 FOR EROSION /SEDIMENTATION CONTROL DETAILS.
8. ADEQUATE BARRIERS BETWEEN ALL VEHICULAR USE AREAS AND ADJACENT LANDSCAPE AREAS, SUCH AS CONCRETE CURBS OR WHEEL STOPS, ARE REQUIRED AND MUST COMPLY WITH COA ENVIRONMENTAL CRITERIA MANUAL (ECM), SECTION 2.4.7, "PROTECTION OF LANDSCAPE AREAS."
9. THE ENVIRONMENTAL INSPECTOR HAS THE AUTHORITY TO ADD AND/OR MODIFY EROSION/SEDIMENTATION CONTROLS ON SITE TO KEEP THE PROJECT IN COMPLIANCE WITH THE CITY OF AUSTIN RULES AND REGULATIONS.
10. IF DISTURBED AREA IS NOT TO BE WORKED ON FOR MORE THAN 14 DAYS, DISTURBED AREA NEEDS TO BE STABILIZED BY REVEGETATION, MULCH, TARP OR REVEGETATION MATTING. (ECM 1.4.4.B.3, SECTION 5, I.)
11. THE CONTRACTOR SHALL UTILIZE DUST CONTROL MEASURES DURING SITE CONSTRUCTION SUCH AS IRRIGATION TRUCKS AND MULCHING AS PER ECM 1.4.5(A), OR AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
12. THE CONTRACTOR WILL CLEAN UP SPOILS THAT MIGRATE ONTO THE ROADS A MINIMUM OF ONCE DAILY. (ECM 1.4.4.D.4)
13. INITIATE FINAL SLOPE STABILIZATION WITH 7 DAYS OF ACHIEVING FINAL GRADE.
14. THE CONTRACTOR SHALL PLACE THE SEDIMENT FENCE IN THE PROPOSED SWALE UPON COMPLETION OF GRADING.
15. ROCK BERM TO BE INSTALLED PRIOR TO WORK. REMOVE AND REPLACE AS NEEDED FOR WORK IN AREA. WHEN REMOVED, INSTALL SILT FENCE OVER PIPE OPENING. PUMP OUT WATER WHEN NEEDED THRU SEDIMENT TRAP PER 624S-1 (SHEET 18) AND DEWATERING FILTER BAG PER DETAIL ON SHEET 18.
16. IN THE EVENT THAT DEWATERING IS NECESSARY, THE CONTRACTOR IS REQUIRED TO PREPARE A DEWATERING PLAN THAT WILL DESCRIBE HOW THE DEWATERING OPERATION WILL BE COMPLETED AND HOW THE PUMP EFFLUENT WILL BE MANAGED. REFERENCE THE SOILS REPORT FOR DISCUSSIONS OF GROUNDWATER CONSIDERATION. THE COST FOR DEWATERING OPERATIONS SHALL BE INCLUDED IN THE PRICE BID FOR THE STORM SEWER IMPROVEMENT. THE CONTRACTOR SHALL FURNISH AND OPERATE SUITABLE PUMPING EQUIPMENT OF SUCH CAPACITY ADEQUATE TO DEWATER THE TRENCH SHOULD WATER BE ENCOUNTERED. THE TRENCH SHALL BE SUFFICIENTLY DEWATERED SO THAT THE PLACEMENT OF BEDDING AND THE LAYING AND JOINING OF PIPE IS MADE ON FIRM, DRY GROUND. IF DEWATERING CANNOT PRODUCE ACCEPTABLE SUBGRADE, AND ONLY AS DIRECTED BY THE ENGINEER, UNSUITABLE MATERIALS SHALL BE REMOVED AND REPLACED PER CITY OF AUSTIN SPECIFICATIONS SECTION 510.3(9) AND SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS SEWER ITEMS. THE CONTRACTOR SHALL BE RESPONSIBLE TO PACE AND MAINTAIN THE NECESSARY SEDIMENT CONTROL MEASURES TO FILTER THE DEWATERING DISCHARGE. THE COST OF ANY DEWATERING OPERATIONS REQUIRED FOR THE CONSTRUCTION OF THE STORM SEWER SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS SEWER ITEMS NO SEPARATE PAYMENT SHALL BE MADE.

## LEGEND

| | |
|---|---|
| 460 | PROPOSED CONTOUR |
| 460 | EXISTING CONTOUR |
| SF | SILT FENCE PER 642S-1 (SHEET 18) |
| TP | TREE PROTECTION FENCE PER 610S-4 (SHEET 4) |
| RB RB | ROCK BERM PER 639S-1 (SHEET 18) |
| LOC LOC | LIMITS OF CONSTRUCTION/DISTURBANCE |
| SCE | STABILIZED CONSTRUCTION ENTRANCE PER 641S-1 (SHEET 18) |
| X X X | TEMPORARY CONSTRUCTION FENCE PER 610S-4 (SHEET 4) |
| -CWQZ- | EXISTING WATER QUALITY ZONE |
| =LOC= | LIMITS OF CONSTRUCTION |
| -WTLD- | EXISTING WETLANDS |

CONTRACTOR HAS THE OPTION OF SUBSTITUTING SILT FENCE FOR MULCH SOCK PER COA DETAIL

LIMITS OF CONSTRUCTION AREA= 12.9 ACRES

THESE PLANS ARE COMPLETE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND IN COMPLIANCE WITH THE CITY OF AUSTIN DEVELOPMENT CODE.

SITE PLAN APPROVAL Sheet 12 of 21

FILE NUMBER: SP-XXXX-XXXXX APPLICATION DATE: XX/XX/XX
APPROVED BY COMMISSION ON N/A UNDER SECTION: XXX OF CHAPTER XX-X OF THE CITY OF AUSTIN CODE.
EXPIRATION DATE (25-5-81, LDC) CASE MANAGER XXXXXXXXXX
PROJECT EXPIRATION DATE (ORD.#970905-A) DWPZ DOZ

Director, Development Review Department
RELEASE FOR GENERAL COMPLIANCE: Zoning:
Rev. 1 Correction 1
Rev. 2 Correction 2
Rev. 3 Correction 3

Final plat must be recorded by the Project Expiration Date, if applicable. Subsequent Site Plans which do not comply with the Code current at the time of filing, and all required Building Permits and/or a notice of construction (if a building permit is not required), must also be approved prior to the Project Expiration Date.

| NO. | REVISION | BY | DATE |
|---|---|---|---|

DESIGNED BY: NAB/CEA
DRAWN BY: JLC
CHECKED BY: PAB/TPB
APPROVED BY: SAS
DATE: JANUARY, 2018

ATKINS
11801 DOMAIN BOULEVARD, SUITE 550
AUSTIN, TEXAS 78758 - (512) 327-6840
TBPE REG. NO. F-474

STATE OF TEXAS · SCOTT A. SMITH · 93378 · LICENSED PROFESSIONAL ENGINEER · 01/03/18

ZILKER PARK
AUSTIN CITY LIMITS STAGING AREA
SITE DEVELOPMENT PERMIT PLANS

EROSION AND SEDIMENT CONTROL PLAN

SHEET NO. 12
OF 21 SHEETS

FILE NO. 53691-09-EROS
PROJECT NO. 100053691

c:\pw_work\alknalx01\ande7652\dms22533\53691-09-EROS.dwg

SP-XXXX-XXXXX

# Attachment I: Inspection and Maintenance for BMPs

Inspection requirements are outlined in the Stormwater Pollution Prevention Plan. For areas of the construction site that have not been finally stabilized, areas used for storage of materials, structural control measures, and locations where vehicles enter or exit the site, personnel provided by the permittee and familiar with the SWPPP will inspect disturbed areas at least once every 14 calendar days and within 24 hours of the end of a storm of 0.5 inch or greater. As an alternative to the above-described inspection schedule, these inspections will occur at least once every 7 calendar days.

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

- Rock berms shall be inspected daily or after each event. The stone and/or fabric core-woven sheathing shall be replaced when the structure ceases to function as intended due to sediment accumulation, washout, construction traffic damage, etc. If sediment reaches a depth equal to 1/3 the height of the berm or 1-foot, whichever is less, the sediment shall be removed.
- Locations where vehicles enter or exit the site will be inspected to prevent tracking or flowing of sediment onto public roadways.
- The dewatering filter bag shall be replaced when the bag is half filled with sediment.
- Disturbed areas and areas used for storage of materials that are exposed to precipitation will be inspected for evidence of, or the potential for, pollutants entering the drainage system.
- Erosion and sediment control measures identified in the plan will be observed to ensure that they are operating correctly.
- Where discharge locations or points are accessible, they will be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.
- The vehicle/equipment wash area will be inspected for loss of aggregate, proper drainage, and proper maintenance of equipment.
- Silt fences should be inspected prior to forecast rain, daily during extended rain events, after rain events, or weekly. If a silt fence is damaged or inoperable, it shall be removed and replaced with a new silt fence. If sediment accumulation reaches approximately 6 inches, it shall be removed.
- The sediment trap shall be cleaned of sediment and restored to its original dimensions when the sediment has accumulated to one-half of the design depth or 1-foot, whichever is less.

After a portion of the site is finally stabilized, inspection will be conducted at least once every month.

# Attachment J: Schedule of Interim and Permanent Soil Stabilization Practices

This schedule is as included in the site plans.

1. Install erosion/sediment controls, tree/natural area protective fencing, and conduct "pre-construction" tree fertilization (if applicable) prior to any site preparation work.
2. Stabilized construction exits will be provided using coarse aggregate or approved substitute.
3. The on-site staging and parking area will be stabilized using coarse aggregate or approved substitute.
4. All disturbed areas to be revegetated are required to place a minimum of 6-inches of topsoil. Topsoil is to not be added within the critical root zone of existing trees.
5. The establishment of temporary and permanent stabilization will be applied to disturbed areas.
6. All disturbed land within the ROW will be stabilized to minimize erosion and sedimentation as soon as possible.
7. Remove temporary erosion controls when the site is stabilized.

# Permanent Stormwater Section

**Texas Commission on Environmental Quality**

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b)(4)(C), (D)(Ii), (E), and (5), Effective June 1, 1999

***To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.***

***Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.***

## Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Permanent Stormwater Section** is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

Print Name of Customer/Agent: Chad Richards, PE

Date: January 26, 2018

Signature of Customer/Agent

---

**Regulated Entity Name**: City of Austin Zilker Park

## Permanent Best Management Practices (BMPs)

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

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

   ☐ N/A

2. ☒ These practices and measures have been designed, and will be constructed, operated, and maintained to insure that 80% of the incremental increase in the annual mass loading of total suspended solids (TSS) from the site caused by the regulated activity is removed. These quantities have been calculated in accordance with technical guidance prepared or accepted by the executive director.

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

☒ A technical guidance other than the TCEQ TGM was used to design permanent BMPs and measures for this site. The complete citation for the technical guidance that was used is: The Environmental Criteria Manual provided by the City of Austin (https://library.municode.com/TX/Austin/codes/Environmental_Criteria_Manual)

☐ N/A

3. ☒ Owners must insure that permanent BMPs and measures are constructed and function as designed. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the appropriate regional office within 30 days of site completion.

   ☐ N/A

4. Where a site is used for low density single-family residential development and has 20 % or less impervious cover, other permanent BMPs are not required. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

   ☐ The site will be used for low density single-family residential development and has 20% or less impervious cover.
   ☐ The site will be used for low density single-family residential development but has more than 20% impervious cover.
   ☒ The site will not be used for low density single-family residential development.

5. The executive director may waive the requirement for other permanent BMPs for multi-family residential developments, schools, or small business sites where 20% or less impervious cover is used at the site. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

   ☐ **Attachment A - 20% or Less Impervious Cover Waiver**. The site will be used for multi-family residential developments, schools, or small business sites and has 20% or less impervious cover. A request to waive the requirements for other permanent BMPs and measures is attached.
   ☐ The site will be used for multi-family residential developments, schools, or small business sites but has more than 20% impervious cover.
   ☒ The site will not be used for multi-family residential developments, schools, or small business sites.

6. ☒ **Attachment B - BMPs for Upgradient Stormwater.**

☐ A description of the BMPs and measures that will be used to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site is attached.

☒ No surface water, groundwater or stormwater originates upgradient from the site and flows across the site, and an explanation is attached.

☐ Permanent BMPs or measures are not required to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site, and an explanation is attached.

7. ☒ **Attachment C - BMPs for On-site Stormwater**.

☒ A description of the BMPs and measures that will be used to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff from the site is attached.

☐ Permanent BMPs or measures are not required to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff, and an explanation is attached.

8. ☐ **Attachment D - BMPs for Surface Streams**. A description of the BMPs and measures that prevent pollutants from entering surface streams, sensitive features, or the aquifer is attached. Each feature identified in the Geologic Assessment as sensitive has been addressed.

☒ N/A

9. ☒ The applicant understands that to the extent practicable, BMPs and measures must maintain flow to naturally occurring sensitive features identified in either the geologic assessment, executive director review, or during excavation, blasting, or construction.

☒ The permanent sealing of or diversion of flow from a naturally-occurring sensitive feature that accepts recharge to the Edwards Aquifer as a permanent pollution abatement measure has not been proposed.

☐ **Attachment E - Request to Seal Features**. A request to seal a naturally-occurring sensitive feature, that includes, for each feature, a justification as to why no reasonable and practicable alternative exists, is attached.

10. ☒ **Attachment F - Construction Plans**. All construction plans and design calculations for the proposed permanent BMP(s) and measures have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer, and are signed, sealed, and dated. The plans are attached and, if applicable include:

☒ Design calculations (TSS removal calculations)

☐ TCEQ construction notes

☐ All geologic features

☒ All proposed structural BMP(s) plans and specifications

☐ N/A

11. ☒ **Attachment G - Inspection, Maintenance, Repair and Retrofit Plan.** A plan for the inspection, maintenance, repairs, and, if necessary, retrofit of the permanent BMPs and measures is attached. The plan includes all of the following:

    ☒ Prepared and certified by the engineer designing the permanent BMPs and measures
    ☒ Signed by the owner or responsible party
    ☒ Procedures for documenting inspections, maintenance, repairs, and, if necessary retrofit
    ☒ A discussion of record keeping procedures

    ☐ N/A

12. ☐ **Attachment H - Pilot-Scale Field Testing Plan.** Pilot studies for BMPs that are not recognized by the Executive Director require prior approval from the TCEQ. A plan for pilot-scale field testing is attached.

    ☒ N/A

13. ☐ **Attachment I -Measures for Minimizing Surface Stream Contamination.** A description of the measures that will be used to avoid or minimize surface stream contamination and changes in the way in which water enters a stream as a result of the construction and development is attached. The measures address increased stream flashing, the creation of stronger flows and in-stream velocities, and other in-stream effects caused by the regulated activity, which increase erosion that results in water quality degradation.

    ☒ N/A

## *Responsibility for Maintenance of Permanent BMP(s)*

***Responsibility for maintenance of best management practices and measures after construction is complete.***

14. ☒ The applicant is responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. Such entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred.

    ☐ N/A

15. ☐ A copy of the transfer of responsibility must be filed with the executive director at the appropriate regional office within 30 days of the transfer if the site is for use as a multiple single-family residential development, a multi-family residential development, or a non-residential development such as commercial, industrial, institutional, schools, and other sites where regulated activities occur.

    ☒ N/A

**Attachment B**

**BMPs for Upgradient Stormwater**

# Attachment B: BMPs for Upgradient Stormwater

A proposed swale will intercept all upgradient, offsite flow and discharge into Lady Bird Lake via a 36-inch storm drain outlet.

**Attachment C**

**BMPs for On-site Stormwater**

# Attachment C: BMPs for On-Site Stormwater

The water quality goal is to remove 80% of the increased total suspended solids (TSS) from the proposed project. This will be accomplished using an onsite City of Austin full sedimentation filtration pond. There is no existing impervious cover within the proposed limits of construction. The proposed project adds 7.87 acres of impervious cover requiring 6,850-lbs of TSS removal.

The proposed onsite City of Austin full sedimentation filtration pond will consist of a sedimentation basin (labeled as a water quality pond on the construction plans) and a filtration basin (labeled as a bio-filtration pond on the construction plans) and will remove 6,900-lbs of TSS. The proposed onsite City of Austin full sedimentation filtration pond is sufficient for the removal of TSS on this project, and will be located on the eastern end of the project site.

Texas Commission on Environmental Quality

***TSS Removal Calculations 04-20-2009***

**Project Name:** Zilker Park Austin City Limits Staging Area
**Date Prepared:** 3/28/2018

**Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.**
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.
**Characters shown in red are data entry fields.**
**Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.**

**1. The Required Load Reduction for the total project:** Calculations from RG-348 Pages 3-27 to 3-30

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

where:

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

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

| | | |
|---|---|---|
| County = | Travis | |
| Total project area included in plan * = | 12.90 | acres |
| Predevelopment impervious area within the limits of the plan * = | 0.00 | acres |
| Total post-development impervious area within the limits of the plan* = | 7.87 | acres |
| Total post-development impervious cover fraction * = | 0.61 | |
| P = | 32 | inches |
| $L_{M\ TOTAL\ PROJECT}$ = | 6850 | lbs. |

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

Number of drainage basins / outfalls areas leaving the plan area = 1

**2. Drainage Basin Parameters (This information should be provided for each basin):**

**Drainage Basin/Outfall Area No. =** 1

| | | |
|---|---|---|
| Total drainage basin/outfall area = | 10.67 | acres |
| Predevelopment impervious area within drainage basin/outfall area = | 0.00 | acres |
| Post-development impervious area within drainage basin/outfall area = | 7.87 | acres |
| Post-development impervious fraction within drainage basin/outfall area = | 0.74 | |
| $L_{M\ THIS\ BASIN}$ = | 6850 | lbs. |

**3. Indicate the proposed BMP Code for this basin.**

Proposed BMP = **Sand Filter**
Removal efficiency = **89** percent

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

**4. Calculate Maximum TSS Load Removed ($L_R$) for this Drainage Basin by the selected BMP Type.**

RG-348 Page 3-33 Equation 3.7: $L_R$ = (BMP efficiency) x P x ($A_I$ x 34.6 + $A_P$ x 0.54)

where:

$A_C$ = Total On-Site drainage area in the BMP catchment area
$A_I$ = Impervious area proposed in the BMP catchment area
$A_P$ = Pervious area remaining in the BMP catchment area
$L_R$ = TSS Load removed from this catchment area by the proposed BMP

$A_C$ = **10.67** acres
$A_I$ = **7.87** acres
$A_P$ = **2.80** acres
$L_R$ = **7798** lbs

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

Desired $L_{M\ THIS\ BASIN}$ = **6900** lbs.

F = **0.88**

**6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area.** Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth = **1.50** inches

| | | | |
|---|---|---|---|
| Post Development Runoff Coefficient = | **0.55** | | |
| On-site Water Quality Volume = | **31702** | cubic feet | |

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

| | | | |
|---|---|---|---|
| Off-site area draining to BMP = | **0.00** | acres | |
| Off-site Impervious cover draining to BMP = | **0.00** | acres | |
| Impervious fraction of off-site area = | **0** | | |
| Off-site Runoff Coefficient = | **0.00** | | |
| Off-site Water Quality Volume = | **0** | cubic feet | |
| Storage for Sediment = | **6340** | | |
| **Total Capture Volume (required water quality volume(s) x 1.20) =** | **38043** | cubic feet | |

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

**7. Retention/Irrigation System** Designed as Required in RG-348 Pages 3-42 to 3-46

| | | | |
|---|---|---|---|
| Required Water Quality Volume for retention basin = | **NA** | cubic feet | |

Irrigation Area Calculations:

| | | | |
|---|---|---|---|
| **Soil infiltration/permeability rate =** | **0.1** | in/hr | **Enter determined permeability rate or assumed value of 0.1** |
| **Irrigation area =** | **NA** | square feet | |
| | **NA** | acres | |

**8. Extended Detention Basin System** Designed as Required in RG-348 Pages 3-46 to 3-51

| | | | |
|---|---|---|---|
| Required Water Quality Volume for extended detention basin = | **NA** | cubic feet | |

**9. Filter area for Sand Filters** Designed as Required in RG-348 Pages 3-58 to 3-63

**9A. Full Sedimentation and Filtration System**

| | | | |
|---|---|---|---|
| Water Quality Volume for sedimentation basin = | **38043** | cubic feet | |
| Minimum filter basin area = | **1761** | square feet | |
| Maximum sedimentation basin area = | **15851** | square feet | **For minimum water depth of 2 feet** |
| Minimum sedimentation basin area = | **3963** | square feet | **For maximum water depth of 8 feet** |

**9B. Partial Sedimentation and Filtration System**

**Water Quality Pond Calculations** (Eqns from 1.6.10.A)

**SEDIMENTATION POND CALCULATIONS FOR DEVELOPMENT PERMITS**

*Drainage Area Data*

| | | |
|---|---|---|
| Drainage Area to Control: | 464,785 | sq. ft. |
| Drainage Area Impervious Cover | 315,396 | sq. ft. |
| | 67.9% | % total |
| Capture Depth (0.5"+((IC-20)/100)): | 0.979 | in. |

*Water Quality Control Calculations*

| | | |
|---|---|---|
| Site Area Draining to Pond | 464,785 | ac. |
| Total Area Draining to Pond | 464,785 | ac. |
| Design Peak Flow Rate | 59.82 | cfs |

| | Required | | Provided | |
|---|---|---|---|---|
| Water Quality Volume (CD*area) | 37,903 | cu. ft. | 40,138 | cu. ft. |
| Bio-Filtration Pond Volume (>20%WQV) | 7,581 | cu. ft. | 18,783 | cu. ft. |
| Bio-Filtration Pond Area (Eqn 1.6.5.A.1) | 2,541 | sq. ft. | 2,750 | sq. ft. |

*Water Quality Elevation*

| | | |
|---|---|---|
| Elevation of Splitter/Overflow Weir | 450.60 | ft. |
| Length of Splitter Weir | 75 | ft. |
| Required Head to Pass Design Flow | 0.40 | ft. |
| Sedimentation Pond Freeboard Provided | 0.00 | ft. |

| Bio-Filtration Pond Volume | | | |
|---|---|---|---|
| Stage (ft.) | Area (sq. ft.) | Storage (cu. ft.) | Cumulative Volume (cu. ft.) |
| 447.2 | 2,750 | 0 | 0 |
| 447.5 | 3,074 | 874 | 874 |
| 448 | 3,626 | 1,672 | 2,546 |
| 448.5 | 4,194 | 2,827 | 4,499 |
| 449 | 4,776 | 3,913 | 6,740 |
| 449.5 | 5,376 | 5,363 | 9,276 |
| 450 | 6,000 | 6,755 | 12,118 |
| 450.5 | 6,657 | 8,526 | 15,281 |

| WQ Volume | | | |
|---|---|---|---|
| Stage (ft.) | Area (sq. ft.) | Storage (cu. ft.) | Cumulative Volume (cu. ft.) |
| 447.8 | 2 | 0 | 0 |
| 448 | 2,449 | 127 | 127 |
| 448.5 | 6,817 | 2,225 | 2,352 |
| 449 | 12,160 | 4,807 | 7,032 |
| 449.5 | 17,166 | 9,521 | 14,328 |
| 450 | 22,807 | 14,766 | 24,287 |
| 450.5 | 28,901 | 22,418 | 37,184 |
| 450.6 | 30,185 | 17,720 | 40,138 |

**Attachment F**

**Construction Plans**

**(REFER TO ZILKER PARK AUSITN CITY LIMITS STAGING AREA PLAN SET)**

**Attachment G**

**Inspection, Maintenance, Repair and Retrofit Plan**

# Attachment G: Inspection, Maintenance, Repair and Retrofit Plan

The City of Austin Parks and Recreation Department will perform the required maintenance activities as listed:

- During the first growing season, inspections will occur biweekly until 95% vegetative cover is established.
- During the first year, monthly inspections will include the removal of accumulated sediments.
- Quarterly inspections will include the removal of debris and accumulated sediments. Soil media will be replaced in voided areas caused by settlement. Eroded areas will be repaired and voided areas will be re-mulched by hand.
- Semi-annual inspections will include the removal and replacement of any dead/diseased vegetation and removal of debris and accumulated sediments. If the drawdown time exceeds 96 hours, the top layer of sediment will be removed, mulch will be added, and vegetation will be replaced. Alternatively, the soil may be de-compacted through scarification and mulch and disturbed vegetation replaced. Sediment removal will be performed at least once every two years.
- In late winter, bunch grasses will be trimmed no lower than 18-inches from the ground. Turf grass will be mowed no lower than 4-inches from the ground. All clippings/trimmings will be removed from the site. Mulching may be used to control weeds by blocking light and air space. Gravel or crushed recycled glass equivalent in size to gravel may be used to cover the soil surface. Weed fabric should not be utilized.
- In spring, the previous mulch layer will be removed and a new mulch layer will be applied by hand (option) once every two to three years.
- The underdrain piping network will be cleaned every five years, or as needed, to remove any sediment build-up.

An amended copy of this document will be provided to TCEQ within 30 days of any changes in the following information.

| | |
|---|---|
| Responsible Party for Maintenance: | City of Austin, Texas |
| Title: | Parks and Recreation Department |
| Mailing Address: | 200 S Lamar Blvd |
| City, State, Zip Code: | Austin, Texas 78704 |
| Telephone: | 512-974-9471 |
| Signature: | |