

Received

MAR 15 2017

HNTB Corporation

Contract

WILLIAMSON COUNTY, TEXAS

CHANGE ORDER NUMBER: 1

DeNucci Constructors

Received

MAR 10 2017

HNTB Corporation  
Round Rock

RECEIVED

MAR 14 2017

BY: PSI

2. Change Order Work Limits: Sta. SK1 1+70 to Sta. SK1 4+92.50

3. Type of Change(on federal-aid non-exempt projects): Minor (Major/Minor)

4. Reasons: 1A, 2E (3 Max. - In order of importance - Primary first)

5. Describe the work being revised:

1A: Design Error or Omission. Incorrect PS&E. This Change Order revises drainage work along Broadmeade Ave., between Sherbrooke St. and Meadowheath Dr. in the Sherbrooke Zone. 2E: Miscellaneous difference in site conditions (unforeseeable)(Item 9). Add new pay items to reimburse the contractor for removal of trees larger than what was called out in the original contract.

6. Work to be performed in accordance with Items: See attached

7. New or revised plan sheet(s) are attached and numbered: GN5,GN6,SK3,SK12,SK25,SK26,SK28

8. New Special Provisions/Specifications to the contract are attached: ☐ Yes ☒ No

9. New Special Provisions to Item N/A No. N/A, Special Specification Item N/A are attached.

Each signatory hereby warrants that each has the authority to execute this Change Order (CO).

The contractor must sign the Change Order and, by doing so, agrees to waive any and all claims for additional compensation due to any and all other expenses; additional changes for time, overhead and profit; or loss of compensation as a result of this change.

The following information must be provided

Time Ext. #: N/A Days added on this CO: 0

Amount added by this change order: \$31,806.00

THE CONTRACTOR

Date 3/8/17

By

Typed/Printed Name

Typed/Printed Title

PAUL T. DeNucci  
MANAGER

RECOMMENDED FOR EXECUTION:

Project Manager

Date

N/A  
Design Engineer

Date

Program Manager

Date

Design Engineer's Seal:

See attached plan sheets

County Commissioner Precinct 1

Date

☐ APPROVED

☐ REQUEST APPROVAL

County Commissioner Precinct 2

Date

☐ APPROVED

☐ REQUEST APPROVAL

County Commissioner Precinct 3

Date

☐ APPROVED

☐ REQUEST APPROVAL

County Commissioner Precinct 4

Date

☐ APPROVED

☐ REQUEST APPROVAL

County Judge

Date

☐ APPROVED

# WILLIAMSON COUNTY, TEXAS

CHANGE ORDER NUMBER: 1

Project # 1604-068

**TABLE A:** Force Account Work and Materials Placed into Stock

|  | LABOR | HOURLY RATE |  |  | HOURLY RATE |
|--|-------|-------------|--|--|-------------|
|  |       |             |  |  |             |
|  |       |             |  |  |             |
|  |       |             |  |  |             |
|  |       |             |  |  |             |
|  |       |             |  |  |             |
|  |       |             |  |  |             |
|  |       |             |  |  |             |
|  |       |             |  |  |             |
|  |       |             |  |  |             |

**TABLE B:** Contract Items:

|           |                                        |      |            | ORIGINAL + PREVIOUSLY REVISED |              | ADD or<br>(DEDUCT) | NEW      |              |                      |
|-----------|----------------------------------------|------|------------|-------------------------------|--------------|--------------------|----------|--------------|----------------------|
| ITEM      | DESCRIPTION                            | UNIT | UNIT PRICE | QUANTITY                      | ITEM COST    | QUANTITY           | QUANTITY | ITEM COST    | OVERRUN/<br>UNDERRUN |
| 0110 6002 | EXCAVATION (CHANNEL)                   | CY   | \$10.00    | 2,980.00                      | \$29,800.00  | (112.00)           | 2,868.00 | \$28,680.00  | (\$1,120.00)         |
| 0132 6003 | EMBANKMENT (FINAL)(ORD COMP)(TY B)     | CY   | \$4.00     | 470.00                        | \$1,880.00   | (6.00)             | 464.00   | \$1,856.00   | (\$24.00)            |
| 0464 6005 | RC PIPE (CL III)(24 IN)                | LF   | \$65.00    | 1,375.00                      | \$89,375.00  | (65.00)            | 1,310.00 | \$85,150.00  | (\$4,225.00)         |
| 0464 6007 | RC PIPE (CL III)(30 IN)                | LF   | \$75.00    | 2,266.00                      | \$169,950.00 | 309.00             | 2,575.00 | \$193,125.00 | \$23,175.00          |
| 0465 6127 | INLET (COMP)(PSL)(FG)(4FTX4FT-3FTX3FT) | EA   | \$4,200.00 | 16.00                         | \$67,200.00  | 3.00               | 19.00    | \$79,800.00  | \$12,600.00          |
| 0467 6394 | SET (TY II) (24 IN) (RCP) (6:1) (P)    | EA   | \$3,800.00 | 19.00                         | \$72,200.00  | (4.00)             | 15.00    | \$57,000.00  | (\$15,200.00)        |
| 0467 6454 | SET (TY II) (36 IN) (RCP) (6:1) (P)    | EA   | \$5,800.00 | 0.00                          | \$0.00       | 1.00               | 1.00     | \$5,800.00   | \$5,800.00           |
| 0752 6008 | TREE REMOVAL (24" - 30" DIA)           | EA   | \$1,600.00 | 0.00                          | \$0.00       | 3.00               | 3.00     | \$4,800.00   | \$4,800.00           |
| 0752 6009 | TREE REMOVAL (30" - 36" DIA)           | EA   | \$2,000.00 | 0.00                          | \$0.00       | 3.00               | 3.00     | \$6,000.00   | \$6,000.00           |
|           |                                        |      |            |                               |              |                    |          |              |                      |
|           |                                        |      |            |                               |              |                    |          |              |                      |
|           |                                        |      |            |                               |              |                    |          |              |                      |
|           |                                        |      |            |                               |              |                    |          |              |                      |
|           |                                        |      |            |                               |              |                    |          |              |                      |
|           |                                        |      |            |                               |              |                    |          |              |                      |
|           |                                        |      |            |                               |              |                    |          |              |                      |
|           |                                        |      |            |                               |              |                    |          |              |                      |
|           |                                        |      |            |                               |              |                    |          |              |                      |
|           |                                        |      |            |                               |              |                    |          |              |                      |
|           |                                        |      |            |                               |              |                    |          |              |                      |
|           |                                        |      |            |                               |              |                    |          |              |                      |
| TOTALS    |                                        |      |            |                               | \$430,405.00 |                    |          | \$462,211.00 | \$31,806.00          |

## CHANGE ORDER REASON(S) CODE CHART

|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Design Error or Omission                  | 1A. Incorrect PS&E<br>1B. Other                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 2. Differing Site Conditions (unforeseeable) | 2A. Dispute resolution (expense caused by conditions and/or resulting delay)<br>2B. Unavailable material<br>2C. New development (conditions changing after PS&E completed)<br>2D. Environmental remediation<br>2E. Miscellaneous difference in site conditions (unforeseeable)(Item 9)<br>2F. Site conditions altered by an act of nature<br>2G. Unadjusted utility (unforeseeable)<br>2H. Unacquired Right-of-Way (unforeseeable)<br>2I. Additional safety needs (unforeseeable)<br>2J. Other                                                                                                                                                                                                                                                       |
| 3. County Convenience                        | 3A. Dispute resolution (not resulting from error in plans or differing site conditions)<br>3B. Public relations improvement<br>3C. Implementation of a Value Engineering finding<br>3D. Achievement of an early project completion<br>3E. Reduction of future maintenance<br>3F. Additional work desired by the County<br>3G. Compliance requirements of new laws and/or policies<br>3H. Cost savings opportunity discovered during construction<br>3I. Implementation of improved technology or better process<br>3J. Price adjustment on finished work (price reduced in exchange for acceptance)<br>3K. Addition of stock account or material supplied by state provision<br>3L. Revising safety work/measures desired by the County<br>3M. Other |
| 4. Third Party Accommodation                 | 4A. Failure of a third party to meet commitment<br>4B. Third party requested work<br>4C. Compliance requirements of new laws and/or policies (impacting third party)<br>4D. Other                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 5. Contractor Convenience                    | 5A. Contractor exercises option to change the traffic control plan<br>5B. Contractor requested change in the sequence and/or method of work<br>5C. Payment for Partnering workshop<br>5D. Additional safety work/measures desired by the contractor<br>5E. Other                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 6. Untimely ROW/Utilities                    | 6A. Right-of-Way not clear (third party responsibility for ROW)<br>6B. Right-of-Way not clear (County responsibility for ROW)<br>6C. Utilities not clear<br>6D. Other                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

## **Williamson County Road Bond Program**

### **Forest North Phase 1 Williamson County Project No. 1604-068**

#### **Change Order No. 1**

#### **Reason for Change**

This Change Order revises drainage work along Broadmeade Avenue, between Sherbrooke Street and Meadowheath Drive in the Sherbrooke Zone. The plans show 24-inch driveway pipes downstream from a 30-inch pipe. The downstream pipe must be at least the same size as the upstream pipe to maintain the capacity necessary to drain the stormwater. Increasing the pipe size required the ditch flowline to be lowered, resulting in a rip rap lined ditch needing edge protection, per the Williamson County Design criteria manual. As a cost savings solution, the County replaced the ditch with pipe and area inlets.

This Change order also adds new pay items to the contract to reimburse the Contractor for removal of trees larger than what was called out in the original contract.

Following is a summary of the items required for this change order.

| ITEM      | DESCRIPTION                         | QTY | UNIT |
|-----------|-------------------------------------|-----|------|
| 0467-6454 | SET (TY II) (36 IN) (RCP) (6:1) (P) | 1   | EA   |
| 0752-6008 | TREE REMOVAL (24" - 30" DIA)        | 3   | EA   |
| 0752-6009 | TREE REMOVAL (30" - 36" DIA)        | 3   | EA   |

This Change Order results in a net increase of \$31,806.00 to the Contract amount, for an adjusted Contract total of \$3,588,465.50. The original Contract amount was \$3,556,659.50. Because of this and all Change Orders to-date, \$31,806.00 has been added to the Contract, resulting in a 0.9% net increase in the Contract cost. No additional days will be added to or deducted from the Contract as a result of this Change Order.

#### **HNTB Corporation**

James Klotz, P.E.

| TXDOT BID ITEM | 467                             | 467                             | 467                             | 496                 | 502                                             | 506                                        | 506                             | 506                                | 506                                   | 506                                  | 530                 | 530                | 531                       | 531                     |
|----------------|---------------------------------|---------------------------------|---------------------------------|---------------------|-------------------------------------------------|--------------------------------------------|---------------------------------|------------------------------------|---------------------------------------|--------------------------------------|---------------------|--------------------|---------------------------|-------------------------|
|                | 6391                            | 6394                            | 6423                            | 6016                | 6001                                            | 6002                                       | 6011                            | 6034                               | 6038                                  | 6039                                 | 6004                | 6005               | 6001                      | 6010                    |
| CIP ID NO      | SET (TY II)<br>(24 IN)<br>(RCP) | SET (TY II)<br>(24 IN)<br>(RCP) | SET (TY II)<br>(30 IN)<br>(RCP) | REMOV STR<br>(PIPE) | BARRICADES,<br>SIGNS AND<br>TRAFFIC<br>HANDLING | ROCK FILTER<br>DAMS<br>(INSTALL)<br>(TY 2) | ROCK FILTER<br>DAMS<br>(REMOVE) | CONSTRUCTION<br>PERIMETER<br>FENCE | TEMP SEDMT<br>CONT FENCE<br>(INSTALL) | TEMP SEDMT<br>CONT FENCE<br>(REMOVE) | DRIVEWAYS<br>(CONC) | DRIVEWAYS<br>(ACP) | CONC<br>SIDEWALKS<br>(4") | CURB<br>RAMPS<br>(TY 7) |
|                | (4: 1) (P)                      | (6: 1) (C)                      | (6: 1) (P)                      |                     |                                                 |                                            |                                 |                                    |                                       |                                      |                     |                    |                           |                         |
|                | EA                              | EA                              | EA                              | EA                  | MO                                              | LF                                         | LF                              | LF                                 | LF                                    | LF                                   | SY                  | SY                 | SY                        | EA                      |
|                |                                 |                                 |                                 |                     |                                                 |                                            |                                 |                                    |                                       |                                      |                     |                    |                           |                         |
| CIP BB1        |                                 |                                 |                                 | 6                   |                                                 | 15                                         | 15                              | 97                                 |                                       |                                      | 370                 |                    | 10                        |                         |
| CIP BB2        |                                 |                                 |                                 | 1                   |                                                 | 15                                         | 15                              | 253                                | 360                                   | 360                                  | 298                 |                    | 13                        |                         |
| CIP BH1        |                                 |                                 |                                 | 2                   |                                                 | 60                                         | 60                              |                                    | 50                                    | 50                                   | 96                  |                    |                           |                         |
| CIP BH2        |                                 |                                 |                                 |                     |                                                 | 30                                         | 30                              | 1750                               | 640                                   | 640                                  |                     |                    |                           |                         |
| CIP SK1        |                                 | 7                               |                                 | 4                   |                                                 | 20                                         | 20                              |                                    | 105                                   | 105                                  | 207                 |                    |                           |                         |
| CIP SK2        |                                 |                                 |                                 | 1                   |                                                 | 20                                         | 20                              |                                    | 185                                   | 185                                  | 106                 |                    | 6                         |                         |
| CIP SK3        |                                 |                                 |                                 | 1                   |                                                 |                                            |                                 |                                    | 160                                   | 160                                  | 75                  |                    | 5                         |                         |
| CIP SK4        |                                 | 12                              |                                 | 3                   |                                                 |                                            |                                 |                                    | 360                                   | 360                                  | 317                 |                    | 12                        |                         |
| CIP SK5        |                                 |                                 |                                 |                     |                                                 |                                            |                                 |                                    | 230                                   | 230                                  | 115                 | 49                 | 20                        |                         |
| CIP SF1        |                                 |                                 |                                 |                     |                                                 | 25                                         | 25                              | 115                                | 360                                   | 360                                  | 176                 |                    | 17                        |                         |
| CIP SF2        | 12                              |                                 |                                 | 4                   |                                                 |                                            |                                 | 40                                 |                                       |                                      | 202                 |                    |                           |                         |
| CIP SF3        | 0                               | 0                               | 0                               | 0                   | 0                                               | 0                                          | 0                               | 0                                  | 0                                     | 0                                    | 0                   | 0                  | 0                         | 0                       |
| CIP SF4        |                                 |                                 |                                 |                     |                                                 |                                            |                                 |                                    |                                       |                                      | 43                  |                    | 6                         |                         |
| CIP TI1        |                                 |                                 |                                 | 2                   |                                                 | 25                                         | 25                              |                                    | 110                                   | 110                                  | 36                  |                    | 13                        |                         |
| CIP TI2        |                                 |                                 |                                 |                     |                                                 |                                            |                                 |                                    | 40                                    | 40                                   | 23                  |                    | 9                         |                         |
| CIP TI3        |                                 |                                 | 1                               | 2                   |                                                 | 25                                         | 25                              | 500                                | 200                                   | 200                                  | 115                 |                    | 10                        |                         |
| CIP WW1        |                                 |                                 |                                 | 2                   |                                                 | 25                                         | 25                              |                                    |                                       |                                      | 264                 |                    | 330                       | 4                       |
| CIP WW2        |                                 |                                 |                                 | 1                   |                                                 | 20                                         | 20                              | 157                                | 15                                    | 15                                   |                     |                    |                           |                         |
| CIP WW3        |                                 |                                 |                                 | 1                   |                                                 |                                            |                                 |                                    | 31                                    | 31                                   | 85                  |                    |                           |                         |
| CIP WW4        |                                 |                                 |                                 |                     |                                                 |                                            |                                 |                                    |                                       |                                      | 33                  |                    |                           |                         |
|                |                                 |                                 |                                 |                     |                                                 |                                            |                                 |                                    |                                       |                                      |                     |                    |                           |                         |
| PROJECT TOTAL  | 12                              | 19                              | 1                               | 30                  | 17                                              | 280                                        | 280                             | 2912                               | 2846                                  | 2846                                 | 2561                | 49                 | 451                       | 4                       |

| TXDOT BID ITEM | 550                             | 552            | 560                               | 644                             | 752                         | 752                          | 752                          | 1004            | 701S       | 701S       | 701S                                     | WC9007                    |
|----------------|---------------------------------|----------------|-----------------------------------|---------------------------------|-----------------------------|------------------------------|------------------------------|-----------------|------------|------------|------------------------------------------|---------------------------|
|                | 6001                            | 6009           | 6001                              | 6071                            | 6005                        | 6006                         | 6007                         | 6002            | D          | E          | T                                        |                           |
| CIP ID NO      | CHAIN LINK FENCE (INSTALL) (6') | GATE (SPECIAL) | MAILBOX INSTALL-S (TWG-POST) TY 1 | RELOCATE SM RD SN SUP&AM TY TWT | TREE REMOVAL (4" - 12" DIA) | TREE REMOVAL (12" - 18" DIA) | TREE REMOVAL (18" - 24" DIA) | TREE PROTECTION | WIRE FENCE | WOOD FENCE | TEMPORARY FENCE, 6 FEET HIGH, CHAIN LINK | IRRIGATION SYSTEM CAPPING |
|                | LF                              | EA             | EA                                | EA                              | EA                          | EA                           | EA                           | AC              | LF         | LF         | LF                                       | EA                        |
| CIP BB1        | 15                              |                | 3                                 | 2                               |                             |                              |                              | 0.4             |            |            |                                          |                           |
| CIP BB2        |                                 |                | 3                                 | 2                               | 1                           |                              |                              | 0.7             |            | 169        | 250                                      |                           |
| CIP BH1        |                                 |                | 1                                 |                                 |                             |                              |                              | 0.4             |            |            |                                          |                           |
| CIP BH2        |                                 |                |                                   |                                 |                             |                              |                              | 0.5             |            |            |                                          |                           |
| CIP SK1        |                                 | 1              | 2                                 | 2                               |                             | 1                            |                              | 0.3             |            |            |                                          |                           |
| CIP SK2        |                                 |                |                                   | 1                               |                             |                              |                              | 0.2             |            |            |                                          |                           |
| CIP SK3        |                                 |                | 1                                 |                                 |                             |                              |                              | 0.1             |            |            |                                          |                           |
| CIP SK4        |                                 |                | 3                                 | 2                               |                             | 3                            | 1                            | 0.4             |            |            |                                          |                           |
| CIP SK5        |                                 |                |                                   |                                 | 3                           |                              |                              | 0.3             |            |            |                                          |                           |
| CIP SF1        |                                 |                | 2                                 |                                 |                             | 2                            | 1                            | 0.6             |            | 200        | 244                                      |                           |
| CIP SF2        |                                 |                |                                   | 1                               |                             |                              | 2                            | 0.4             |            | 250        | 250                                      |                           |
| CIP SF3        | 0                               | 0              | 0                                 | 0                               | 0                           | 0                            | 0                            | 0.0             | 0          | 0          | 0                                        | 0                         |
| CIP SF4        |                                 |                |                                   |                                 |                             |                              |                              | 0.1             |            |            |                                          |                           |
| CIP TI1        |                                 |                |                                   |                                 | 1                           |                              |                              | 0.2             |            |            |                                          |                           |
| CIP TI2        |                                 |                |                                   |                                 |                             |                              |                              | 0.1             |            |            |                                          |                           |
| CIP TI3        |                                 | 1              |                                   |                                 |                             |                              |                              | 0.5             | 25         |            |                                          |                           |
| CIP WW1        |                                 |                | 3                                 | 2                               |                             | 1                            |                              | 0.5             |            | 138        | 15                                       |                           |
| CIP WW2        |                                 |                |                                   |                                 |                             |                              |                              | 0.1             |            | 157        |                                          |                           |
| CIP WW3        |                                 |                |                                   | 1                               |                             |                              |                              | 0.2             |            |            |                                          |                           |
| CIP WW4        |                                 |                |                                   |                                 |                             |                              |                              | 0.1             |            |            |                                          |                           |
| PROJECT TOTAL  | 15                              | 2              | 18                                | 13                              | 5                           | 7                            | 4                            | 6.1             | 25         | 914        | 759                                      | 90                        |

NOTE:

THE REMOVAL OF ALL ITEMS INDICATED TO BE REMOVED AND REPLACED SHALL BE CONSIDERED SUBSIDIARY TO THE REPLACEMENT ITEM UNLESS OTHERWISE INDICATED.

[illegible]

X:\Projects\0300 - Forest North Phase 2\DCN\Sheets\0300\*CN\*QTY01.dgn modified by vortega on 12/12/2016 - 11:54:27 AM

| TXDOT BID ITEM | 100           | 110                  | 132                                | 160                                 | 164                                       | 164                                        | 168                 | 169                                   | 400                 | 402                          | 432                  | 432                               | 432                                  | 459            | 464                      |
|----------------|---------------|----------------------|------------------------------------|-------------------------------------|-------------------------------------------|--------------------------------------------|---------------------|---------------------------------------|---------------------|------------------------------|----------------------|-----------------------------------|--------------------------------------|----------------|--------------------------|
|                | 6002          | 6002                 | 6003                               | WC02                                | WC05                                      | WC10                                       | WC01                | 6006                                  | 6006                | 6001                         | 6002                 | 6033                              | 6029                                 | 6001           | 6003                     |
| CIP ID NO      | PREPARING ROW | EXCAVATION (CHANNEL) | EMBANKMENT (FINAL)(ORD COMP)(TY B) | FURNISHING AND PLACING TOPSOIL (4") | SEEDING FOR EROSION CONTROL (TY 5) (PERM) | SEEDING FOR EROSION CONTROL (TY 10) (TEMP) | VEGETATIVE WATERING | SOIL RETENTION BLANKETS (CL 2) (TY F) | CUT & RESTORING PAV | TRENCH EXCAVATION PROTECTION | RIPRAP (CONC) (5 IN) | RIPRAP (STONE PROTECTION) (18 IN) | RIPRAP (STONE COMMON) (GROUT) (8 IN) | GABIONS (GALV) | RC PIPE (CL III) (18 IN) |
|                | STA           | CY                   | CY                                 | SY                                  | SY                                        | SY                                         | MG                  | SY                                    | SY                  | LF                           | CY                   | CY                                | CY                                   | CY             | LF                       |
| CIP BB1        | 21            | 215                  | 30                                 | 1395                                | 1395                                      | 698                                        | 35                  | 1395                                  | 82                  | 567                          | 3                    |                                   |                                      | 10             | 258                      |
| CIP BB2        | 13            | 345                  | 20                                 | 2270                                | 2270                                      | 1135                                       | 57                  | 2270                                  | 26                  | 228                          |                      |                                   |                                      | 10             | 315                      |
| CIP BH1        | 8             | 120                  | 20                                 | 1510                                | 1510                                      | 755                                        | 38                  | 1510                                  | 38                  | 253                          | 8                    | 3                                 |                                      | 10             | 35                       |
| CIP BH2        | 7             | 580                  | 5                                  | 2350                                | 2350                                      | 1175                                       | 59                  | 2350                                  |                     |                              | 68                   |                                   |                                      |                |                          |
| CIP SK1        | 8             | 153                  | 39                                 | 1240                                | 1240                                      | 620                                        | 31                  | 1240                                  | 36                  | 305                          |                      |                                   | 24                                   |                |                          |
| CIP SK2        | 6             | 5                    | 5                                  | 585                                 | 585                                       | 293                                        | 15                  | 585                                   | 29                  | 267                          |                      |                                   |                                      |                | 69                       |
| CIP SK3        | 4             | 35                   | 20                                 | 400                                 | 400                                       | 200                                        | 10                  | 400                                   | 45                  | 162                          |                      |                                   |                                      |                |                          |
| CIP SK4        | 12            | 115                  | 75                                 | 1545                                | 1545                                      | 773                                        | 39                  | 1545                                  | 35                  | 566                          |                      |                                   |                                      |                | 80                       |
| CIP SK5        | 8             | 85                   | 30                                 | 1030                                | 1030                                      | 515                                        | 26                  | 1030                                  |                     | 86                           |                      |                                   |                                      |                | 76                       |
| CIP SF1        | 12            | 155                  | 20                                 | 2545                                | 2545                                      | 1273                                       | 64                  | 2545                                  | 68                  | 618                          | 1                    |                                   |                                      | 10             | 89                       |
| CIP SF2        | 11            | 285                  | 25                                 | 1485                                | 1485                                      | 743                                        | 37                  | 1485                                  | 94                  |                              | 2                    |                                   |                                      |                | 126                      |
| CIP SF3        | 0             | 0                    | 0                                  | 0                                   | 0                                         | 0                                          | 0                   | 0                                     | 0                   | 0                            | 0                    | 0                                 | 0                                    | 0              | 0                        |
| CIP SF4        | 3             | 35                   | 5                                  | 355                                 | 355                                       | 178                                        | 9                   | 355                                   |                     |                              |                      |                                   |                                      |                | 46                       |
| CIP TI1        | 5             | 90                   | 10                                 | 690                                 | 690                                       | 345                                        | 17                  | 690                                   | 36                  | 60                           |                      |                                   |                                      | 3              | 18                       |
| CIP TI2        | 2             | 25                   | 5                                  | 270                                 | 270                                       | 135                                        | 7                   | 270                                   |                     |                              |                      |                                   |                                      |                | 189                      |
| CIP TI3        | 7             | 220                  | 35                                 | 2390                                | 2390                                      | 1195                                       | 60                  | 2390                                  | 45                  | 75                           |                      |                                   |                                      |                | 93                       |
| CIP WW1        | 11            | 275                  | 75                                 | 1430                                | 1430                                      | 715                                        | 36                  | 1430                                  | 53                  |                              | 2                    |                                   |                                      | 2              | 440                      |
| CIP WW2        | 2             | 10                   | 10                                 | 495                                 | 495                                       | 248                                        | 12                  | 495                                   | 33                  | 125                          |                      |                                   |                                      | 6              | 30                       |
| CIP WW3        | 6             | 40                   | 20                                 | 810                                 | 810                                       | 405                                        | 20                  | 810                                   | 39                  | 108                          |                      |                                   |                                      |                |                          |
| CIP WW4        | 2             | 40                   | 10                                 | 355                                 | 355                                       | 178                                        | 9                   | 355                                   |                     | 30                           |                      |                                   |                                      |                | 92                       |
| PROJECT TOTAL  | 148           | 2828                 | 459                                | 23150                               | 23150                                     | 11575                                      | 579                 | 23150                                 | 659                 | 3450                         | 84                   | 3                                 | 24                                   | 51             | 1956                     |

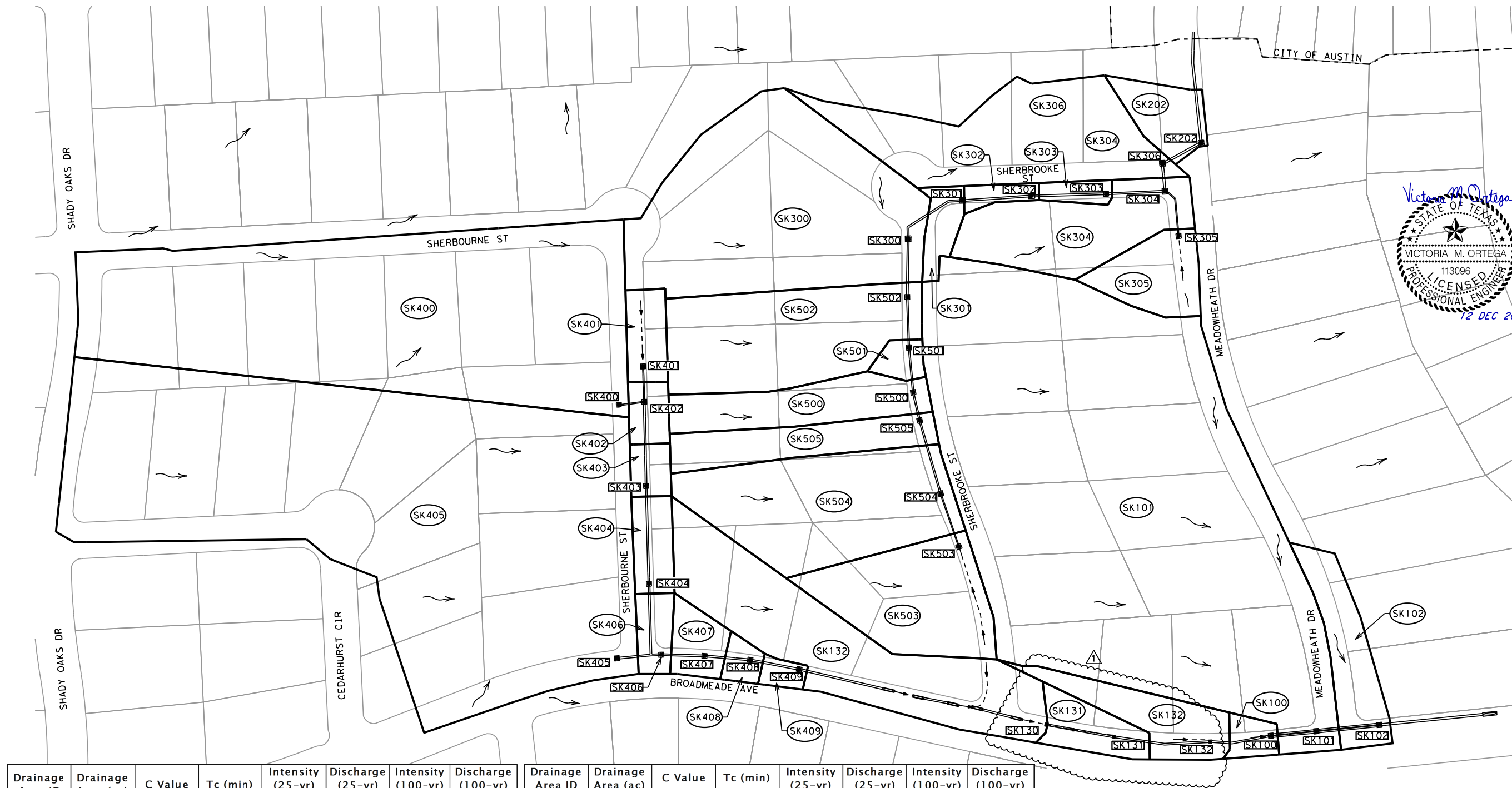
| TXDOT BID ITEM | 464                            | 464                            | 464                            | 465                                                  | 465                                                  | 465                                                  | 465                                                  | 465                                                  | 465                                                  | 465                                                  | 467                                           | 467                                           | 467                                           | 467                                           |
|----------------|--------------------------------|--------------------------------|--------------------------------|------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|
|                | 6005                           | 6007                           | 6008                           | 6126                                                 | 6127                                                 | 6128                                                 | 6134                                                 | 6135                                                 | 6137                                                 | 6138                                                 | 6323                                          | 6358                                          | 6359                                          | 6363                                          |
| CIP ID NO      | RC PIPE<br>(CL III)<br>(24 IN) | RC PIPE<br>(CL III)<br>(30 IN) | RC PIPE<br>(CL III)<br>(36 IN) | INLET<br>(COMPL) (PSL)<br>(FG) (3FTX3FT-<br>3FTX3FT) | INLET<br>(COMPL) (PSL)<br>(FG) (4FTX4FT-<br>3FTX3FT) | INLET<br>(COMPL) (PSL)<br>(FG) (4FTX4FT-<br>4FTX4FT) | INLET<br>(COMPL) (PSL)<br>(FG) (5FTX5FT-<br>3FTX3FT) | INLET<br>(COMPL) (PSL)<br>(FG) (5FTX5FT-<br>4FTX4FT) | INLET<br>(COMPL) (PSL)<br>(FG) (5FTX6FT-<br>3FTX3FT) | INLET<br>(COMPL) (PSL)<br>(FG) (5FTX6FT-<br>4FTX4FT) | SET (TY II)<br>(12 IN)<br>(RCP)<br>(4: 1) (C) | SET (TY II)<br>(18 IN)<br>(RCP)<br>(4: 1) (C) | SET (TY II)<br>(18 IN)<br>(RCP)<br>(4: 1) (P) | SET (TY II)<br>(18 IN)<br>(RCP)<br>(6: 1) (P) |
|                | LF                             | LF                             | LF                             | EA                                                   | EA                                                   | EA                                                   | EA                                                   | EA                                                   | EA                                                   | EA                                                   | EA                                            | EA                                            | EA                                            | EA                                            |
| CIP BB1        |                                | 405                            | 150                            | 2                                                    | 5                                                    | 2                                                    |                                                      | 1                                                    |                                                      |                                                      |                                               |                                               | 8                                             |                                               |
| CIP BB2        | 57                             | 173                            |                                | 1                                                    | 2                                                    |                                                      |                                                      |                                                      |                                                      |                                                      |                                               |                                               | 23                                            |                                               |
| CIP BH1        |                                | 64                             | 261                            |                                                      |                                                      | 3                                                    |                                                      |                                                      |                                                      |                                                      |                                               | 4                                             |                                               |                                               |
| CIP BH2        |                                |                                |                                |                                                      |                                                      |                                                      |                                                      |                                                      |                                                      |                                                      |                                               | 4                                             |                                               |                                               |
| CIP SK1        | 288                            | 309                            | 145                            |                                                      | 3                                                    |                                                      |                                                      |                                                      | 2                                                    | 1                                                    |                                               |                                               |                                               |                                               |
| CIP SK2        |                                |                                | 251                            | 1                                                    | 2                                                    |                                                      |                                                      |                                                      |                                                      |                                                      |                                               |                                               |                                               |                                               |
| CIP SK3        |                                | 378                            |                                | 2                                                    | 2                                                    |                                                      |                                                      |                                                      |                                                      |                                                      |                                               | 1                                             |                                               |                                               |
| CIP SK4        |                                | 719                            |                                | 9                                                    |                                                      | 1                                                    |                                                      |                                                      |                                                      |                                                      |                                               | 2                                             |                                               |                                               |
| CIP SK5        | 271                            | 79                             |                                | 6                                                    | 1                                                    |                                                      |                                                      |                                                      |                                                      |                                                      |                                               | 6                                             |                                               |                                               |
| CIP SF1        |                                |                                | 598                            |                                                      | 4                                                    | 1                                                    |                                                      |                                                      |                                                      |                                                      |                                               |                                               | 10                                            |                                               |
| CIP SF2        | 269                            |                                |                                |                                                      |                                                      |                                                      |                                                      |                                                      |                                                      |                                                      |                                               |                                               | 6                                             |                                               |
| CIP SF3        | 0                              | 0                              | 0                              | 0                                                    | 0                                                    | 0                                                    | 0                                                    | 0                                                    | 0                                                    | 0                                                    | 0                                             | 0                                             | 0                                             | 0                                             |
| CIP SF4        |                                |                                |                                |                                                      |                                                      |                                                      |                                                      |                                                      |                                                      |                                                      |                                               |                                               | 6                                             |                                               |
| CIP TI1        | 80                             | 128                            |                                | 1                                                    |                                                      | 1                                                    |                                                      |                                                      |                                                      |                                                      |                                               |                                               | 4                                             |                                               |
| CIP TI2        |                                |                                |                                | 3                                                    |                                                      |                                                      |                                                      |                                                      |                                                      |                                                      |                                               |                                               |                                               |                                               |
| CIP TI3        |                                | 254                            |                                | 2                                                    |                                                      |                                                      |                                                      |                                                      |                                                      |                                                      |                                               |                                               | 8                                             |                                               |
| CIP WW1        |                                |                                |                                |                                                      |                                                      | 1                                                    |                                                      |                                                      |                                                      |                                                      |                                               |                                               |                                               | 21                                            |
| CIP WW2        |                                | 66                             | 174                            | 1                                                    |                                                      |                                                      | 1                                                    |                                                      |                                                      |                                                      |                                               |                                               |                                               |                                               |
| CIP WW3        | 367                            |                                |                                | 3                                                    |                                                      | 1                                                    |                                                      |                                                      |                                                      |                                                      |                                               |                                               |                                               |                                               |
| CIP WW4        |                                |                                |                                |                                                      |                                                      |                                                      |                                                      |                                                      |                                                      |                                                      | 2                                             |                                               | 2                                             | 1                                             |
| PROJECT TOTAL  | 1332                           | 2575                           | 1579                           | 31                                                   | 19                                                   | 10                                                   | 1                                                    | 1                                                    | 2                                                    | 1                                                    | 2                                             | 17                                            | 67                                            | 22                                            |

NOTE:

THE REMOVAL OF ALL ITEMS INDICATED TO BE REMOVED AND REPLACED SHALL BE CONSIDERED SUBSIDIARY TO THE REPLACEMENT ITEM UNLESS OTHERWISE INDICATED.

[illegible]

X:\Projects\0300 - Forest North Phase 2\Drawings\0300\SK\*DAM.dgn modified by vortega on 12/12/2016 - 11:54:47 AM



| Drainage Area ID | Drainage Area (ac) | C Value | Tc (min) | Intensity (25-yr) (in/hr) | Discharge (25-yr) (cfs) | Intensity (100-yr) (in/hr) | Discharge (100-yr) (cfs) |
|------------------|--------------------|---------|----------|---------------------------|-------------------------|----------------------------|--------------------------|
| SK100            | 1.96               | 0.5     | 28.9     | 5.00                      | 5.39                    | 6.55                       | 8.03                     |
| SK101            | 5.86               | 0.5     | 31.9     | 4.73                      | 15.23                   | 6.21                       | 22.76                    |
| SK102            | 0.39               | 0.5     | 10.0     | 8.19                      | 1.76                    | 10.40                      | 2.53                     |
| SK130            | 1.31               | 0.5     | 23.6     | 5.58                      | 4.02                    | 7.27                       | 5.43                     |
| SK131            | 0.22               | 0.5     | 10.0     | 8.19                      | 0.97                    | 10.40                      | 1.30                     |
| SK132            | 0.35               | 0.5     | 10.0     | 8.19                      | 1.57                    | 10.40                      | 2.07                     |
| SK202            | 0.23               | 0.5     | 10.0     | 8.19                      | 1.04                    | 10.40                      | 1.49                     |
| SK300            | 2.01               | 0.5     | 21.4     | 5.86                      | 6.50                    | 7.63                       | 9.61                     |
| SK301            | 0.12               | 0.5     | 10.0     | 8.19                      | 0.56                    | 10.40                      | 0.81                     |
| SK302            | 0.07               | 0.5     | 10.0     | 8.19                      | 0.30                    | 10.40                      | 0.43                     |
| SK303            | 0.07               | 0.5     | 10.0     | 8.19                      | 0.31                    | 10.40                      | 0.45                     |
| SK304            | 0.677              | 0.5     | 10.0     | 8.19                      | 3.05                    | 10.40                      | 4.40                     |
| SK305            | 0.32               | 0.5     | 10.0     | 8.19                      | 1.44                    | 10.40                      | 2.07                     |
| SK306            | 1.13               | 0.5     | 25.8     | 5.32                      | 3.30                    | 6.95                       | 4.90                     |

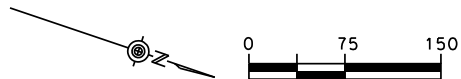
| Drainage Area ID | Drainage Area (ac) | C Value | Tc (min) | Intensity (25-yr) (in/hr) | Discharge (25-yr) (cfs) | Intensity (100-yr) (in/hr) | Discharge (100-yr) (cfs) |
|------------------|--------------------|---------|----------|---------------------------|-------------------------|----------------------------|--------------------------|
| SK400            | 3.73               | 0.5     | 29.4     | 4.95                      | 10.15                   | 6.50                       | 15.14                    |
| SK401            | 0.17               | 0.5     | 10.0     | 8.19                      | 0.75                    | 10.40                      | 1.09                     |
| SK402            | 0.11               | 0.5     | 10.0     | 8.19                      | 0.51                    | 10.40                      | 0.73                     |
| SK403            | 0.10               | 0.5     | 10.0     | 8.19                      | 0.35                    | 10.40                      | 0.62                     |
| SK404            | 0.18               | 0.5     | 10.0     | 8.19                      | 0.63                    | 10.40                      | 1.14                     |
| SK405            | 5.80               | 0.5     | 31.0     | 4.80                      | 15.32                   | 6.31                       | 22.87                    |
| SK406            | 0.13               | 0.5     | 10.0     | 8.19                      | 0.58                    | 10.40                      | 0.84                     |
| SK407            | 0.16               | 0.5     | 10.0     | 8.19                      | 0.73                    | 10.40                      | 1.06                     |
| SK408            | 0.07               | 0.5     | 10.0     | 8.19                      | 0.31                    | 10.40                      | 0.45                     |
| SK409            | 0.05               | 0.5     | 10.0     | 8.19                      | 0.25                    | 10.40                      | 0.35                     |
| SK500            | 0.47               | 0.5     | 10.0     | 8.19                      | 2.11                    | 10.40                      | 3.04                     |
| SK501            | 0.08               | 0.5     | 10.0     | 8.19                      | 0.35                    | 10.40                      | 0.51                     |
| SK502            | 1.03               | 0.5     | 10.0     | 8.19                      | 4.64                    | 10.40                      | 6.69                     |
| SK503            | 0.75               | 0.5     | 10.0     | 8.19                      | 3.36                    | 10.40                      | 4.84                     |
| SK504            | 1.16               | 0.5     | 17.6     | 6.46                      | 4.13                    | 8.35                       | 6.07                     |
| SK505            | 0.40               | 0.5     | 10.0     | 8.19                      | 1.82                    | 10.40                      | 2.63                     |

NOTE:

1. HYDROLOGY FOR THE ONSITE DRAINAGE BASINS WAS DEVELOPED USING THE RATIONAL METHOD DESCRIBED IN THE TXDOT HYDRAULIC MANUAL, MAY 2014, SECTION 13.
- C-VALUE: 0.50 FOR SF RESIDENTIAL  
TC: KERBY-KIRPICH METHOD

LEGEND

- CITY OF AUSTIN LIMITS
- DRAINAGE AREA
- CHANNEL
- FLOW DIRECTION
- (X.XX) DRAINAGE AREA ID
- (X.XX) INLET ID



K FRIESE & ASSOCIATES, INC.  
1120 S. CAPITAL OF TEXAS HWY, II-100, AUSTIN, TX 78746

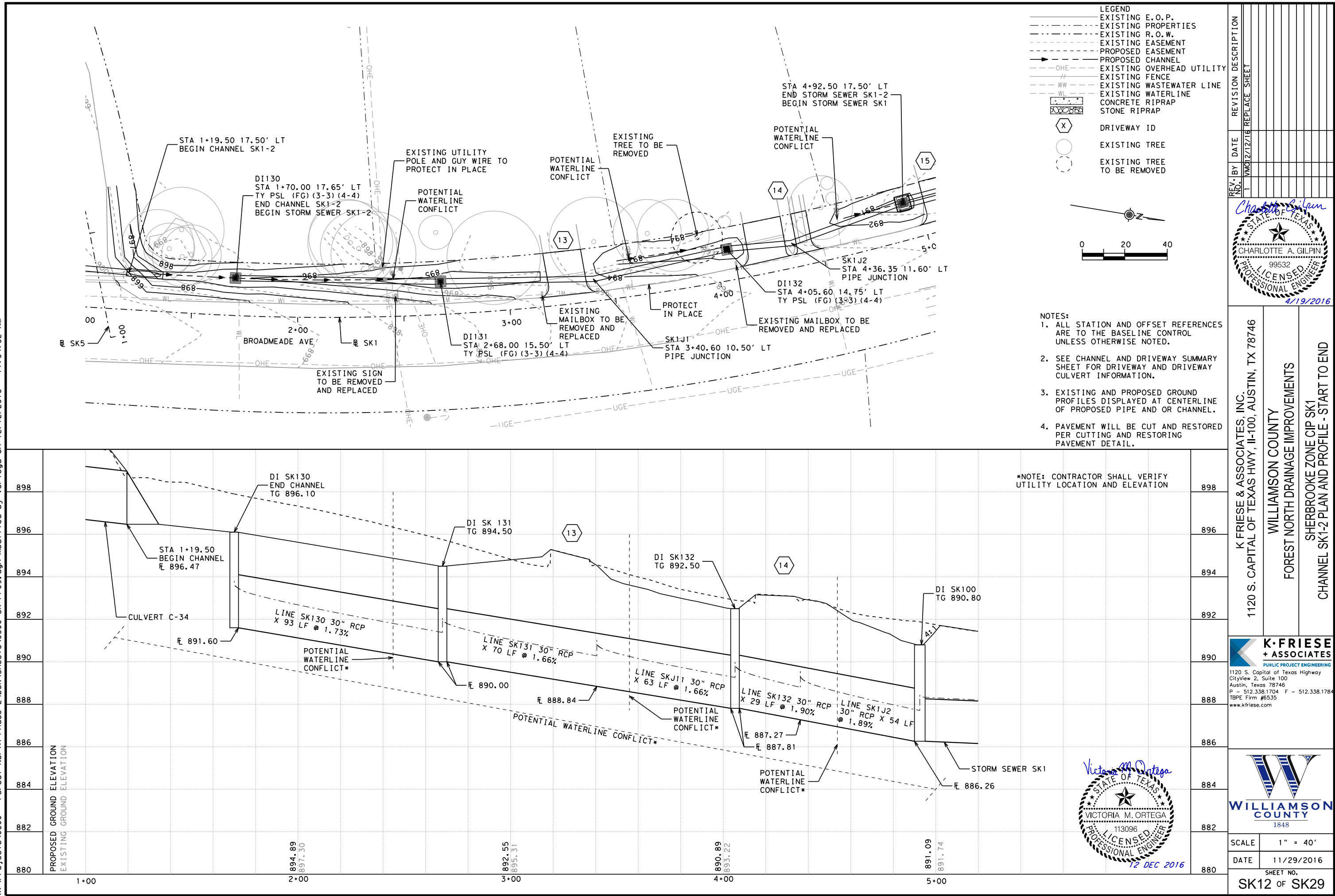
WILLIAMSON COUNTY  
FOREST NORTH DRAINAGE IMPROVEMENTS  
SHERBROOKE ZONE  
DRAINAGE AREA MAP

**K·FRIESE + ASSOCIATES**  
PUBLIC PROJECT ENGINEERING  
1120 S. Capital of Texas Highway  
CityView 2, Suite 100  
Austin, Texas 78746  
P - 512.338.1704 F - 512.338.1784  
TBP Firm #6535  
www.kfriesecom



SCALE 1" = 150'  
DATE 11/29/2016  
SHEET NO. SK3 OF SK29

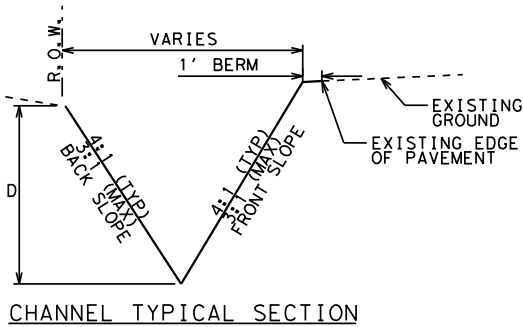
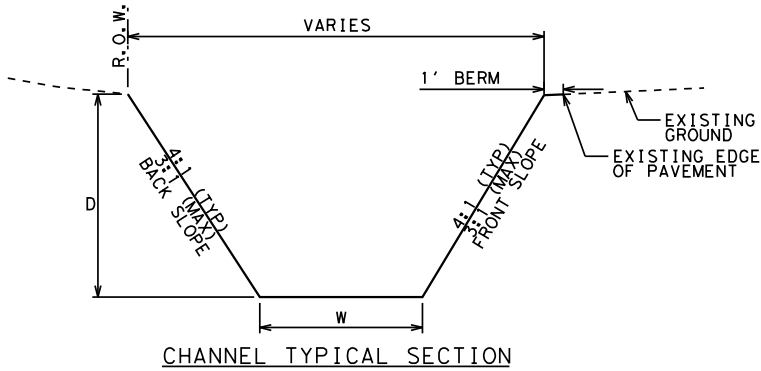
X:\Projects\0300 - Forest North Phase 2\DCN\Sheets\0300\*SK\*PP09.dgn modified by vortega on 12/12/2016 - 11:54:52 AM



Channel Hydraulics Summary

| CIP Project ID | Channel ID | Segment ID | Upstream      |             |               | Downstream Station |             |               | Length | Longitudinal Slope | Roughness Coefficient | Bottom Width (W) | Depth (D) | Side Front | Side Back | Capacity | Lining Material | Q <sub>25</sub> | V <sub>25</sub> | d <sub>25</sub> |      |      |
|----------------|------------|------------|---------------|-------------|---------------|--------------------|-------------|---------------|--------|--------------------|-----------------------|------------------|-----------|------------|-----------|----------|-----------------|-----------------|-----------------|-----------------|------|------|
|                |            |            | Station (sta) | Offset (ft) | Flowline (ft) | Station (sta)      | Offset (ft) | Flowline (ft) |        |                    |                       |                  |           |            |           |          |                 |                 |                 |                 | (ft) | (%)  |
| SK1            | SK1-2      | 1          | 1+19.50       | 17.50       | LT            | 896.47             | 1+70.00     | 17.65         | LT     | 896.10             | 50.50                 | 0.73             | 0.040     | N/A        | 1.9       | 6.0      | 4.0             | 54.6            | GRASS           | 32.3            | 2.65 | 1.56 |
|                |            | 1a         | 1+70.00       | 17.65       | LT            | 896.10             | 2+68.00     | 17.65         | LT     | 894.50             | 98.00                 | 1.63             | 0.040     | N/A        | 0.7       | 6.0      | 4.0             | 5.7             | GRASS           | 1.0             | 1.50 | 0.36 |
|                |            | 2          | 3+40.50       | 17.50       | LT            | 891.86             | 4+12.00     | 17.60         | LT     | 890.88             | 71.50                 | 1.37             | 0.040     | N/A        | 0.8       | 4.0      | 6.0             | 5.4             | GRASS           | 1.6             | 1.40 | 0.47 |
|                |            | 3          | 4+51.00       | 17.50       | LT            | 889.80             | 4+92.50     | 17.50         | LT     | 889.51             | 41.50                 | 0.70             | 0.040     | N/A        | 2.5       | 3.6      | 3.0             | 72.2            | GRASS           | 22.8            | 2.63 | 1.62 |
| SK2            | SK2-1      | 1          | 2+45.13       | 15.97       | LT            | 895.51             | 2+64.72     | 18.91         | LT     | 895.43             | 19.59                 | 0.41             | 0.040     | N/A        | 0.5       | 4.0      | 6.0             | 1.2             | GRASS           | 1.1             | 0.92 | 0.49 |
|                |            | 2          | 2+82.28       | 19.37       | LT            | 895.35             | 3+45.50     | 19.10         | LT     | 895.04             | 63.22                 | 0.49             | 0.040     | 3          | 0.5       | 4.0      | 6.0             | 4.9             | GRASS           | 1.4             | 0.92 | 0.33 |
| SK4            | SK4-1      | 1          | 4+35.50       | 16.70       | LT            | 898.90             | 4+93.28     | 16.00         | LT     | 898.15             | 57.78                 | 1.30             | 0.040     | N/A        | 2.5       | 4.0      | 4.0             | 120.4           | GRASS           | 27.7            | 3.34 | 1.44 |
|                |            | 2          | 5+28.33       | 17.25       | LT            | 898.02             | 5+77.70     | 18.80         | LT     | 896.95             | 50.33                 | 2.13             | 0.040     | N/A        | 2.5       | 4.0      | 3.0             | 134.0           | GRASS           | 27.7            | 4.13 | 1.38 |
|                | SK4-3      | 1          | 1+46.97       | 11.53       | LT            | 907.25             | 2+40.00     | 11.50         | LT     | 906.30             | 93.03                 | 1.02             | 0.040     | N/A        | 1.0       | 4.0      | 4.0             | 14.1            | GRASS           | 0.8             | 1.26 | 0.40 |
| SK5            | SK5-3      | 1          | 2+07.51       | 18.00       | LT            | 898.12             | 1+40.42     | 26.20         | LT     | 896.95             | 72.17                 | 1.62             | 0.040     | N/A        | 1.3       | 4.0      | 4.0             | 23.5            | GRASS           | 3.4             | 2.14 | 0.63 |
|                | SK5-2      | 1          | 2+33.01       | 16.87       | LT            | 898.15             | 3+79.90     | 19.70         | LT     | 897.45             | 141.16                | 0.50             | 0.040     | 3          | 1.0       | 4.0      | 4.0             | 13.4            | GRASS           | 4.1             | 1.39 | 0.56 |

△



K FRIESE & ASSOCIATES, INC.  
1120 S. CAPITAL OF TEXAS HWY, II-100, AUSTIN, TX 78746

WILLIAMSON COUNTY  
FOREST NORTH DRAINAGE IMPROVEMENTS  
SHERBROOKE ZONE  
CHANNEL SUMMARY

**K·FRIESE + ASSOCIATES**  
PUBLIC PROJECT ENGINEERING  
1120 S. Capital of Texas Highway  
CityView 2, Suite 100  
Austin, Texas 78746  
P - 512.338.1704 F - 512.338.1784  
TBPE Firm #6535  
www.kfriesee.com



SCALE

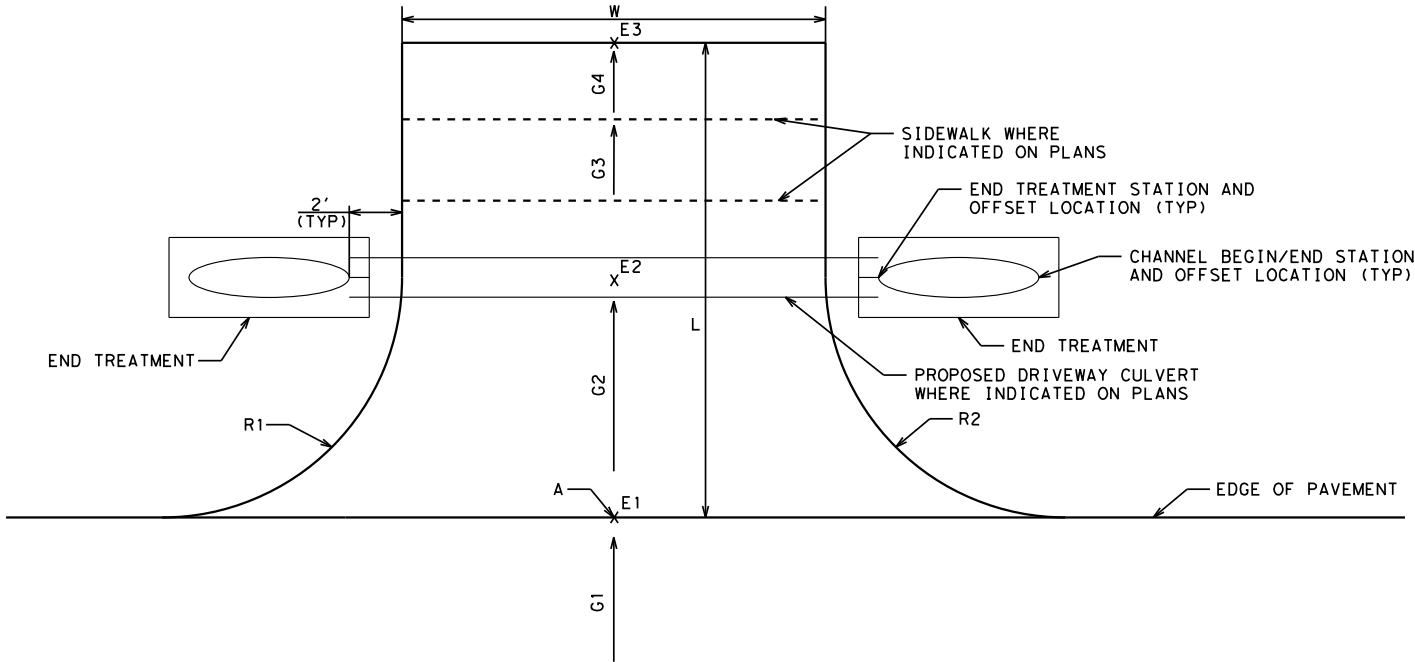
DATE 11/29/2016

SHEET NO.  
SK25 OF SK29

X:\Projects\0300 - Forest North Phase 2\DCN\Sheets\0300\*SK\*HYD02.dgn modified by vortega on 12/12/2016 - 11:54:58 AM

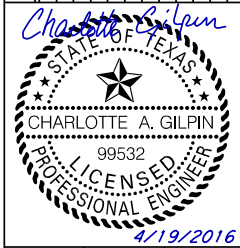
Driveway Culvert Summary

| CIP Project ID | Driveway ID | Station (A) | Length (L) | Width (W) | Radius (R <sub>1</sub> ) | Radius (R <sub>2</sub> ) | Roadway Grade (G <sub>1</sub> ) | Driveway Grade (G <sub>2</sub> ) | Sidewalk Grade (G <sub>3</sub> ) | Driveway Grade (G <sub>4</sub> ) | Elevation              |                        |                        | Sidewalk Area (sq) | Driveway Area (sq) | Number of Barrels | RCP (CL III) (18 IN) (lf) | RCP (CL III) (24 IN) (lf) | RCP (CL III) (30 IN) (lf) | Upstream           |               |             |               | Downstream         |               |             |               | Slope (ft/ft) | Roughness Coefficient (n) | Culvert Flows         |                      |                |
|----------------|-------------|-------------|------------|-----------|--------------------------|--------------------------|---------------------------------|----------------------------------|----------------------------------|----------------------------------|------------------------|------------------------|------------------------|--------------------|--------------------|-------------------|---------------------------|---------------------------|---------------------------|--------------------|---------------|-------------|---------------|--------------------|---------------|-------------|---------------|---------------|---------------------------|-----------------------|----------------------|----------------|
|                |             |             |            |           |                          |                          |                                 |                                  |                                  |                                  | (E <sub>1</sub> ) (ft) | (E <sub>2</sub> ) (ft) | (E <sub>3</sub> ) (ft) |                    |                    |                   |                           |                           |                           | End Treatment (ea) | Station (sta) | Offset (ft) | Flowline (ft) | End Treatment (ea) | Station (sta) | Offset (ft) | Flowline (ft) |               |                           | Q <sub>25</sub> (cfs) | d <sub>25</sub> (ft) | Capacity (cfs) |
| SK1            | 13          | 3+28.14     | 21         | 18        | 5                        | 5                        | -2.55                           | -2.20                            | N/A                              | N/A                              | 895.36                 | 894.94                 | 894.89                 |                    | 43                 |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
|                | 14          | 4+22.72     | 19         | 18        | 5                        | 2                        | -2.10                           | -1.38                            | N/A                              | 3.70                             | 893.44                 | 893.23                 | 893.51                 |                    | 40                 |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
|                | 14A         | 4+43.71     | 19         | 7         | 2                        | 5                        | -2.35                           | -3.79                            | N/A                              | 4.27                             | 893.14                 | 892.79                 | 893.08                 |                    | 17                 |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
|                | 15          | 5+15.66     | 20         | 27        | 5                        | 5                        | -3.64                           | -5.66                            | N/A                              | 3.73                             | 892.19                 | 891.50                 | 891.78                 |                    | 60                 |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
| SK2            | 16          | 6+61.68     | 20         | 20        | 5                        | 5                        | -1.93                           | 1.32                             | N/A                              | N/A                              | 890.42                 | 890.60                 | 890.69                 |                    | 47                 |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
|                | 31          | 2+73.41     | 18         | 18        | 5                        | 5                        | -1.87                           | -10.01                           | N/A                              | 12.47                            | 896.28                 | 895.14                 | 895.73                 |                    | 38                 |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
|                | 30S         | 3+54.24     | 16         | 4         | N/A                      | N/A                      | -0.74                           | N/A                              | N/A                              | N/A                              | 896.50                 | 895.74                 | 895.75                 | 6                  |                    |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
|                | 33          | 4+58.63     | 17         | 17        | 5                        | 5                        | -3.09                           | -6.05                            | N/A                              | 0.02                             | 896.95                 | 896.45                 | 896.46                 |                    | 34                 |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
| SK3            | 34          | 5+10.66     | 17         | 17        | 5                        | 5                        | -1.23                           | -7.26                            | N/A                              | 1.44                             | 897.44                 | 896.85                 | 896.99                 |                    | 34                 |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
|                | 26          | 1+27.77     |            |           |                          |                          |                                 |                                  |                                  |                                  |                        |                        |                        |                    |                    |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
|                | 27          | 2+69.77     | 14         | 10        | 5                        | 5                        | -0.25                           | -0.77                            | N/A                              | N/A                              | 897.89                 | 897.84                 | 897.78                 |                    | 17                 |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
|                | 28S         | 3+82.81     | 13         | 3         | N/A                      | N/A                      | -3.62                           | N/A                              | N/A                              | N/A                              | 896.94                 | 896.30                 | 896.56                 | 5                  |                    |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
| SK4            | 29          | 4+19.73     | 13         | 24        | 5                        | 5                        | -4.24                           | -12.45                           | N/A                              | 6.64                             | 896.71                 | 895.92                 | 896.29                 |                    | 36                 |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
|                | 1           | 1+52.00     |            |           |                          |                          |                                 |                                  |                                  |                                  |                        |                        |                        |                    |                    |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
|                | 2           | 2+62.93     | 15         | 19        | 5                        | 10                       | -1.86                           | -4.63                            | N/A                              | N/A                              | 908.67                 | 908.33                 | 907.98                 |                    | 37                 |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
|                | 3           | 3+58.78     | 13         | 20        | 5                        | 5                        | -2.66                           | -15.11                           | N/A                              | 11.52                            | 908.42                 | 907.51                 | 907.95                 |                    | 30                 |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
|                | 4           | 3+89.36     | 13         | 9         | 5                        | 5                        | -3.76                           | -1.07                            | N/A                              | 7.02                             | 908.26                 | 907.59                 | 907.88                 |                    | 15                 |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
|                | 6           | 4+59.86     | 13         | 28        | 5                        | 5                        | -2.91                           | -4.51                            | N/A                              | 9.48                             | 907.96                 | 907.16                 | 907.67                 |                    | 43                 |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
|                | 7S          | 5+57.59     | 14         | 4         | N/A                      | N/A                      | -1.29                           | N/A                              | N/A                              | N/A                              | 907.69                 | 907.09                 | 907.10                 | 6                  |                    |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
|                | 8           | 1+44.37     | 21         | 16        | 5                        | 5                        | -1.81                           | -4.22                            | N/A                              | 0.55                             | 907.22                 | 906.73                 | 906.76                 |                    | 37                 |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
|                | 9           | 2+15.35     | 19         | 11        | 5                        | 5                        | -2.35                           | 1.63                             | N/A                              | -3.75                            | 906.54                 | 906.72                 | 906.42                 |                    | 24                 |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
|                | 10          | 2+71.69     | 18         | 19        | 5                        | 5                        | -2.79                           | -1.75                            | N/A                              | N/A                              | 905.64                 | 905.58                 | 905.52                 |                    | 38                 |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
|                | 11          | 3+34.80     | 18         | 18        | 5                        | 5                        | -3.34                           | -8.20                            | N/A                              | N/A                              | 904.58                 | 904.22                 | 904.22                 |                    | 39                 |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
| SK5            | 12          | 5+12.17     | 23         | 21        | 5                        | 5                        | -3.33                           | -1.21                            | N/A                              | N/A                              | 901.82                 | 901.71                 | 901.57                 |                    | 54                 |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
|                | 18          | 3+98.25     | 14         | 20        | 5                        | 5                        | -0.66                           | 1.72                             | N/A                              | N/A                              | 898.92                 | 899.05                 | 899.14                 |                    | 33.0               |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
|                | 19S         | 4+66.72     | 19         | 4         | N/A                      | N/A                      | -0.65                           | N/A                              | N/A                              | N/A                              | 898.70                 | 898.71                 | 898.84                 | 9                  |                    |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
|                | 20          | 4+98.34     | 19         | 21        | 5                        | 5                        | -2.63                           | 2.20                             | N/A                              | N/A                              | 898.59                 | 898.72                 | 899.01                 |                    | 44                 |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
|                | 21          | 5+27.66     | 19         | 12        | 5                        | 5                        | -2.27                           | -4.37                            | N/A                              | 5.79                             | 898.60                 | 898.31                 | 898.83                 |                    | 26                 |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
|                | 22S         | 5+74.78     | 18         | 4         | N/A                      | N/A                      | -3.51                           | N/A                              | N/A                              | N/A                              | 898.33                 | 898.55                 | 898.56                 | 6                  |                    |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
|                | 23          | 6+19.21     | 15         | 11        | 5                        | 10                       | -3.20                           | 1.40                             | N/A                              | N/A                              | 898.54                 | 898.60                 | 898.73                 |                    | 23                 |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
|                | 24S         | 6+75.79     | 15         | 4         | N/A                      | N/A                      | -1.18                           | N/A                              | N/A                              | N/A                              | 898.73                 | 898.88                 | 898.80                 | 5                  |                    |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |
| SK6            | 25          | 7+55.82     | 16         | 20        | 5                        | 5                        | 0.44                            | 2.26                             | N/A                              | N/A                              | 898.75                 | 898.89                 | 899.11                 |                    | 38                 |                   |                           |                           |                           |                    |               |             |               |                    |               |             |               |               |                           |                       |                      |                |



DRIVEWAY DETAIL

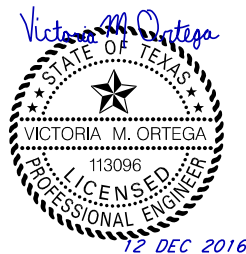
| REV. NO. | BY   | DATE    | REVISION DESCRIPTION |
|----------|------|---------|----------------------|
| 1        | WMOI | 2/12/16 | REVISE CHANNEL SK1-2 |



K FRIESE & ASSOCIATES, INC.  
1120 S. CAPITAL OF TEXAS HWY, II-100, AUSTIN, TX 78746

WILLIAMSON COUNTY  
FOREST NORTH DRAINAGE IMPROVEMENTS  
SHERBROOKE ZONE  
DRIVEWAY SUMMARY

**K•FRIESE + ASSOCIATES**  
PUBLIC PROJECT ENGINEERING  
1120 S. Capital of Texas Highway  
CityView 2, Suite 100  
Austin, Texas 78746  
P - 512.338.1704 F - 512.338.1784  
TBPE Firm #6535  
www.kfriesecom



|           |              |
|-----------|--------------|
| SCALE     |              |
| DATE      | 11/29/2016   |
| SHEET NO. | SK26 OF SK29 |

| Inlet ID | Station<br>(sta) | Chain | Offset<br>(ft) | Description         | Grate<br>Perimeter<br>(ft) | Grate<br>Area<br>(sf) | Clog<br>Reduction<br>Factor | Perimeter<br>Reduction<br>Factor | Inlet<br>Elevation<br>(ft) | Q <sub>25</sub><br>(cfs) | Allowable<br>Ponded<br>(ft) | Ponded<br>Elevation<br>(ft) | Notes    |
|----------|------------------|-------|----------------|---------------------|----------------------------|-----------------------|-----------------------------|----------------------------------|----------------------------|--------------------------|-----------------------------|-----------------------------|----------|
| SK100    | 4+92.50          | SK1   | 17.50          | LT TY PSL(FG)(3-3)  | 12.67                      | 5.50                  | 0.50                        | 0.50                             | 890.80                     | 0.38                     | 0.90                        | 890.87                      |          |
| SK101    | 5+56.50          | SK1   | 17.50          | LT TY PSL(FG)(4-4)  | 16.67                      | 8.19                  | 0.50                        | 0.50                             | 890.24                     | 15.23                    | 1.00                        | 890.94                      | 4-892.56 |
| SK102    | 6+45.25          | SK1   | 17.50          | LT TY PSL(FG)(3-3)  | 12.67                      | 5.50                  | 0.50                        | 0.50                             | 890.15                     | 1.26                     | 0.55                        | 890.35                      |          |
| SK130    | 1+70.00          | SK1   | 17.65          | LT TY PSL(FG)(3-3)  | 12.67                      | 5.50                  | 0.50                        | 0.50                             | 896.10                     | 4.02                     | 2.00                        | 896.45                      |          |
| SK131    | 2+68.00          | SK1   | 15.50          | LT TY PSL(FG)(3-3)  | 12.67                      | 5.50                  | 0.50                        | 0.50                             | 894.50                     | 0.97                     | 0.70                        | 894.64                      |          |
| SK132    | 4+05.60          | SK1   | 14.75          | LT TY PSL(SFG)(3-3) | 12.67                      | 4.53                  | 0.50                        | 0.50                             | 892.50                     | 1.57                     | 0.60                        | 892.69                      |          |
| SK202    | 4+72.00          | SK2   | 26.00          | RT TY PSL(FG)(3-3)  | 12.67                      | 5.50                  | 0.50                        | 0.50                             | 896.00                     | 1.04                     | 0.50                        | 896.14                      |          |
| SK300    | 8+16.97          | SK5   | 15.65          | LT TY PSL(FG)(3-3)  | 12.67                      | 5.50                  | 0.50                        | 0.50                             | 897.55                     | 6.50                     | 1.00                        | 898.03                      | 4-898.90 |
| SK301    | 1+62.75          | SK3   | 16.20          | RT TY PSL(FG)(3-3)  | 12.67                      | 5.50                  | 0.50                        | 0.50                             | 897.24                     | 0.56                     | 0.50                        | 897.33                      |          |
| SK302    | 2+59.25          | SK3   | 14.25          | RT TY PSL(FG)(3-3)  | 12.67                      | 5.50                  | 0.50                        | 0.50                             | 896.60                     | 0.30                     | 0.50                        | 896.66                      |          |
| SK303    | 3+65.00          | SK3   | 15.70          | RT TY PSL(FG)(3-3)  | 12.67                      | 5.50                  | 0.50                        | 0.50                             | 895.90                     | 0.31                     | 0.50                        | 895.96                      |          |
| SK304    | 4+47.90          | SK3   | 15.70          | RT TY PSL(FG)(3-3)  | 12.67                      | 5.50                  | 0.50                        | 0.50                             | 894.95                     | 3.05                     | 0.40                        | 895.24                      |          |
| SK305    | 3+45.50          | SK2   | 19.10          | LT TY PSL(FG)(3-3)  | 12.67                      | 5.50                  | 0.50                        | 0.50                             | 895.01                     | 1.44                     | 0.50                        | 895.18                      |          |
| SK306    | 4+46.00          | SK3   | 23.70          | LT TY PSL(FG)(3-3)  | 12.67                      | 5.50                  | 0.50                        | 0.50                             | 895.25                     | 3.30                     | 1.00                        | 895.56                      | 4-897.16 |
| SK400    | 2+93.25          | SK4A  | 24.30          | RT TY PSL(FG)(3-3)  | 12.67                      | 5.50                  | 0.50                        | 0.50                             | 907.34                     | 10.15                    | 1.00                        | 907.99                      | 4-909.16 |
| SK401    | 2+40.00          | SK4A  | 11.50          | LT TY PSL(FG)(3-3)  | 12.67                      | 5.50                  | 0.50                        | 0.50                             | 906.30                     | 0.75                     | 1.00                        | 906.41                      |          |
| SK402    | 2+90.00          | SK4A  | 11.50          | LT TY PSL(FG)(3-3)  | 12.67                      | 5.50                  | 0.50                        | 0.50                             | 907.20                     | 0.51                     | 1.00                        | 907.29                      |          |
| SK403    | 4+08.08          | SK4A  | 10.00          | LT TY PSL(FG)(3-3)  | 12.67                      | 5.50                  | 0.50                        | 0.50                             | 907.50                     | 0.43                     | 0.50                        | 907.58                      |          |
| SK404    | 5+45.76          | SK4A  | 9.14           | LT TY PSL(FG)(3-3)  | 12.67                      | 5.50                  | 0.50                        | 0.50                             | 906.60                     | 0.79                     | 0.50                        | 906.72                      |          |
| SK405    | 1+16.40          | SK4-2 | 0.00           | RT TY PSL(FG)(4-4)  | 16.67                      | 8.19                  | 0.50                        | 0.50                             | 906.60                     | 15.32                    | 0.60                        | 907.31                      | 4-907.98 |
| SK406    | 1+22.66          | SK4B  | 17.00          | LT TY PSL(FG)(3-3)  | 12.67                      | 5.50                  | 0.50                        | 0.50                             | 906.15                     | 0.58                     | 0.50                        | 906.25                      |          |
| SK407    | 1+82.09          | SK4B  | 16.50          | LT TY PSL(FG)(3-3)  | 12.67                      | 5.50                  | 0.50                        | 0.50                             | 905.75                     | 0.73                     | 0.50                        | 905.86                      |          |
| SK408    | 2+45.15          | SK4B  | 17.40          | LT TY PSL(FG)(3-3)  | 12.67                      | 5.50                  | 0.50                        | 0.50                             | 905.50                     | 0.31                     | 0.50                        | 905.56                      |          |
| SK409    | 3+13.77          | SK4B  | 17.50          | LT TY PSL(FG)(3-3)  | 12.67                      | 5.50                  | 0.50                        | 0.50                             | 903.95                     | 0.25                     | 0.50                        | 904.00                      |          |
| SK500    | 6+03.10          | SK5   | 18.60          | LT TY PSL(FG)(3-3)  | 12.67                      | 5.50                  | 0.50                        | 0.50                             | 897.53                     | 2.11                     | 1.00                        | 897.76                      |          |
| SK501    | 6+65.00          | SK5   | 17.80          | LT TY PSL(FG)(3-3)  | 12.67                      | 5.50                  | 0.50                        | 0.50                             | 897.80                     | 0.35                     | 0.50                        | 897.87                      |          |
| SK502    | 7+35.00          | SK5   | 18.20          | LT TY PSL(FG)(3-3)  | 12.67                      | 5.50                  | 0.50                        | 0.50                             | 897.40                     | 4.64                     | 0.50                        | 897.78                      |          |
| SK503    | 3+79.90          | SK5   | 19.70          | LT TY PSL(FG)(3-3)  | 12.67                      | 5.50                  | 0.50                        | 0.50                             | 897.45                     | 3.36                     | 0.50                        | 897.76                      |          |
| SK504    | 4+58.75          | SK5   | 16.10          | LT TY PSL(FG)(3-3)  | 12.67                      | 5.50                  | 0.50                        | 0.50                             | 897.62                     | 4.13                     | 0.50                        | 897.97                      |          |
| SK505    | 5+63.50          | SK5   | 16.50          | LT TY PSL(FG)(3-3)  | 12.67                      | 5.50                  | 0.50                        | 0.50                             | 897.69                     | 1.82                     | 0.50                        | 897.90                      |          |

*Victoria M Ortega*



The seal is circular with a double-lined border. Inside the border, the words "STATE OF TEXAS" are at the top and "PROFESSIONAL ENGINEER" are at the bottom, separated by stars. In the center is a five-pointed star. Below the star, the name "VICTORIA M. ORTEGA" is written. Below the name is the license number "113096". At the bottom of the seal, the expiration date "12 DEC 2020" is written.

SHEET 67 OF 167

## Ryan Rivera

---

**From:** paul@denucciconstructors.com  
**Sent:** Monday, October 03, 2016 2:46 PM  
**To:** Ryan Rivera  
**Subject:** RE: 1604-068 Forest North\_additional trees to be removed

30-36" 2000.00

Basically, it is \$400.00 every 6 "

Paul T. DeNucci  
DeNucci Constructors, LLC  
8310-1 Cap Tx Hwy N. Ste 275  
Austin, Texas 78731  
512-335-0600  
512-342-0600 fax  
512-658-3986 cell  
[paul@denucciconstructors.com](mailto:paul@denucciconstructors.com)  
[www.denucciconstructors.com](http://www.denucciconstructors.com)

----- Original Message -----

Subject: RE: 1604-068 Forest North\_additional trees to be removed  
From: Ryan Rivera <[rrivera@HNTB.com](mailto:rrivera@HNTB.com)>  
Date: Mon, October 03, 2016 2:39 pm  
To: "[paul@denucciconstructors.com](mailto:paul@denucciconstructors.com)" <[paul@denucciconstructors.com](mailto:paul@denucciconstructors.com)>

Send me a quote for that size.

---

**From:** [paul@denucciconstructors.com](mailto:paul@denucciconstructors.com) [<mailto:paul@denucciconstructors.com>]  
**Sent:** Monday, October 03, 2016 2:38 PM  
**To:** Ryan Rivera <[rrivera@HNTB.com](mailto:rrivera@HNTB.com)>  
**Subject:** RE: 1604-068 Forest North\_additional trees to be removed

Ryan - Got it. The first tree that is coming out at Tichester is 33" - how do you want us to bill that? It is larger than any bid item.

Paul T. DeNucci  
DeNucci Constructors, LLC  
8310-1 Cap Tx Hwy N. Ste 275  
Austin, Texas 78731  
512-335-0600  
512-342-0600 fax  
512-658-3986 cell  
[paul@denucciconstructors.com](mailto:paul@denucciconstructors.com)  
[www.denucciconstructors.com](http://www.denucciconstructors.com)

----- Original Message -----

Subject: Re: 1604-068 Forest North\_additional trees to be removed  
From: Ryan Rivera <[rrivera@HNTB.com](mailto:rrivera@HNTB.com)>

## Ryan Rivera

---

**From:** paul@denucciconstructors.com  
**Sent:** Friday, December 30, 2016 1:56 PM  
**To:** Ryan Rivera  
**Subject:** Forest North 36" SET

Hi Ryan. The price for the 36" SET's will be:

6:1 \$5800.00. The one completed was a 6:1

4:1. \$5600.00

Thanks.

Paul T. DeNucci  
DeNucci Constructors, LLC  
8310-1 Cap Tx Hwy N. Ste 275  
Austin, Texas 78731  
512-335-0600  
512-342-0600 fax  
512-658-3986 cell  
[paul@denucciconstructors.com](mailto:paul@denucciconstructors.com)  
[www.denucciconstructors.com](http://www.denucciconstructors.com)