

| AREA NO. | DRAINAGE AREA "A" (ACRES) | TIME OF CONCENTRATION (IN MINUTES) | RUNOFF COEFFICIENT "C" | INTENSITY "I" 100' (IN./HR.) | DESIGN FLOW "Q" "Q 100" (cfs) | REMARKS |
|----------|---------------------------|------------------------------------|------------------------|------------------------------|-------------------------------|---|
| A1 | 0.56 | 10 | 0.70 | 9.8 | 3.84 | GRASS - AREA DRAIN |
| A2 | 0.11 | 10 | 0.70 | 9.8 | 0.75 | GRASS - AREA DRAIN |
| A3 | 0.17 | 10 | 0.70 | 9.8 | 1.17 | GRASS - AREA DRAIN |
| A4 | 0.67 | 10 | 0.70 | 9.8 | 4.60 | BUILDING - 10' CURB INLET |
| A5 | 0.54 | 10 | 0.70 | 9.8 | 3.70 | BUILDING - 10' CURB INLET |
| A6 | 0.77 | 10 | 0.70 | 9.8 | 5.28 | BUILDING ROOF DRAINS |
| A7 | 0.19 | 10 | 0.70 | 9.8 | 1.30 | BUILDING ROOF DRAINS |
| A8 | 0.23 | 10 | 0.70 | 9.8 | 1.58 | BUILDING ROOF DRAINS |
| A9 | 0.32 | 10 | 0.70 | 9.8 | 2.20 | BUILDING ROOF DRAINS |
| A10 | 0.33 | 10 | 0.70 | 9.8 | 2.26 | GRASS - COURT YARD |
| A11 | 0.93 | 10 | 0.70 | 9.8 | 6.38 | BUILDING ROOF DRAINS |
| A12 | 0.39 | 10 | 0.70 | 9.8 | 2.68 | BUILDING ROOF DRAINS |
| A13 | 0.64 | 10 | 0.70 | 9.8 | 4.39 | GRASS |
| A14 | 0.27 | 10 | 0.70 | 9.8 | 1.85 | GRASS |
| A15 | 0.53 | 10 | 0.70 | 9.8 | 3.64 | ROOF DRAINS - NAT. |
| A16 | 2.74 | 10 | 0.70 | 9.8 | 18.80 | 20' INLET |
| A17 | 3.86 | 10 | 0.70 | 9.8 | 26.48 | PARKING AND DETENTION POND |
| OS-A18 | 10.80 | 10 | 0.35 | 8.3 | 31.37 | OFF - SITE |
| B1 | 0.21 | 10 | 0.70 | 9.8 | 1.44 | EXISTING BUILDING ROOF DRAINS |
| B2 | 0.47 | 10 | 0.70 | 9.8 | 3.22 | EXISTING BUILDING / COURTYARD ROOF DRAINS |
| B3 | 0.27 | 10 | 0.70 | 9.8 | 1.85 | EXISTING BUILDING / COURTYARD ROOF DRAINS |
| B4 | 0.52 | 10 | 0.70 | 9.8 | 3.57 | EXISTING BUILDING / COURTYARD ROOF DRAINS |
| B5 | 2.10 | 10 | 0.70 | 9.8 | 14.40 | EXISTING BUILDING / COURTYARD ROOF DRAINS - 10' INLET |
| B6 | 0.23 | 10 | 0.70 | 9.8 | 1.58 | EXISTING BUILDING ROOF DRAINS |
| B7 | 0.34 | 10 | 0.70 | 9.8 | 2.33 | EXISTING BUILDING ROOF DRAINS |
| OS-B8 | 10.90 | 10 | 0.35 | 8.30 | 31.66 | OFF-SITE |
| B9 | 0.20 | 10 | 0.70 | 9.8 | 1.37 | EXISTING BUILDING ROOF DRAINS |
| B10 | 0.43 | 10 | 0.70 | 9.8 | 2.95 | BUILDING ROOF DRAINS |
| B11 | 0.51 | 10 | 0.70 | 9.8 | 3.50 | GRASS - DRIVE - 5' 10' INLET |
| B12 | 0.60 | 10 | 0.70 | 9.8 | 4.11 | GRASS - DRIVE - 5' 10' INLET |
| C1 | 1.41 | 10 | 0.70 | 9.8 | 9.67 | EXISTING STORM |
| C2 | 1.30 | 10 | 0.70 | 9.8 | 8.92 | EXISTING STORM |
| C3 | 0.35 | 10 | 0.70 | 9.8 | 2.40 | TO TOWNSEND DRIVE |
| C4 | 0.50 | 10 | 0.70 | 9.8 | 3.43 | ROOF DRAINS - NAT. - TO STORM |
| C5 | 4.50 | 10 | 0.70 | 9.8 | 30.87 | EXISTING STADIUM |
| D1 | 0.42 | 10 | 0.70 | 9.8 | 2.88 | TO TOWNSEND DRIVE |
| D2 | 1.30 | 10 | 0.70 | 9.8 | 8.92 | EXISTING 10' CURB INLET |
| D3 | 0.66 | 10 | 0.70 | 9.8 | 4.53 | EXISTING 10' CURB INLET |
| D4 | 0.52 | 10 | 0.70 | 9.8 | 3.57 | EXISTING 10' CURB INLET |
| D5 | 1.97 | 10 | 0.70 | 9.8 | 13.51 | EXISTING STORM |
| D6 | 2.28 | 10 | 0.70 | 9.8 | 15.64 | EXISTING STORM |
| D7 | 0.69 | 10 | 0.70 | 9.8 | 4.73 | EXISTING 10' CURB INLET |

| INLET DESIGN CALCULATIONS | | PROJECT NAME | | UTLEY SITE | | BY | | RAH | | | | | | | | |
|---------------------------|------------------|-------------------------------|----------------------|-----------------------|-------------------|------------|--------------|---|----------------------------|--------------------------|-------------------------|------------|-------------------|-------------------------|-------|---|
| LINE NAME | | N/A | | DATE | | 05/29/08 | | | | | | | | | | |
| Drain Areas | Inlet Location | Design Storm Frequency (yrs.) | AREA RUNOFF Q = CIA | | | | | Carry-Over From Upstream Inlet (c.f.s.) | Total Gutter Flow (c.f.s.) | Gutter Capacity (c.f.s.) | Gutter Slope (ft/100ft) | Crown Type | SELECTED INLET | | | Carry-Over To Downstream Inlet (c.f.s.) |
| | | | Time of Conc. (min.) | Intensity I (in./hr.) | Runoff Coeff. "C" | Area (ac.) | "Q" (c.f.s.) | | | | | | Length "L" (feet) | Inlet Capacity (c.f.s.) | Type | |
| A5 | 0+42 - LINE "B3" | 100 | 10 | 9.8 | 0.70 | 0.54 | 3.70 | 0 | N/A | LOW | POINT | N/A | 10 | 10 | C.I. | 0 |
| A4 | 0+36 - LINE "B2" | 100 | 10 | 9.8 | 0.70 | 0.67 | 4.60 | 0 | N/A | LOW | POINT | N/A | 10 | 10 | C.I. | 0 |
| PART OF A13 | 0+27 - LINE "B7" | 100 | 10 | 9.8 | 0.70 | 0.19 | 1.32 | 0 | N/A | LOW | POINT | N/A | 5 | 5 | C.I. | 0 |
| PART OF A13 | 0+54 - LINE "B6" | 100 | 10 | 9.8 | 0.70 | 0.13 | 0.90 | 0 | N/A | LOW | POINT | N/A | 24"x24" | 4.5 | GRATE | 0 |
| A14 | 0+52 - LINE "B5" | 100 | 10 | 9.8 | 0.70 | 0.64 | 4.40 | 0 | N/A | LOW | POINT | N/A | 24"x24" | 4.5 | GRATE | 0 |
| B1,2,3,4,6,7 | 5+14 - LINE "C" | 100 | 10 | 9.8 | 0.70 | 2.04 | 13.99 | 0 | N/A | LOW | POINT | N/A | 1-4"x4" | 20 | "Y" | 0 |
| B5 | 0+30 - LINE "C2" | 100 | 10 | 9.8 | 0.70 | 2.10 | 14.4 | 0 | N/A | LOW | POINT | N/A | 15' | 15 | C.I. | 0 |
| PART OF A12 | 0+20 - LINE "C1" | 100 | 10 | 9.8 | 0.70 | 0.58 | 4.0 | 0 | N/A | LOW | POINT | N/A | 5' | 5 | C.I. | 0 |
| PART OF A12 | 0+06 - LINE "C4" | 100 | 10 | 9.8 | 0.70 | 1.07 | 7.38 | 0 | N/A | LOW | POINT | N/A | 10' | 10 | C.I. | 0 |

LEGEND

- = PROPOSED DRAINAGE DIVIDE
- = PROPOSED DRAINAGE AREA
- = PROPOSED CONTOUR
- = PROPOSED FINISH FLOOR
- = PROPOSED STORM SEWER
- = DIRECTION OF FLOW
- = EXISTING CONTOUR
- = EXISTING STORM SEWER

A7
0.50
FF = 582.00

PRESENT CONDITIONS

Q = C*I*A
C = 0.35
Tc = 20 MINUTES
1100 = 8.3 in/hr
Q100 = (0.35)(8.3)(56.69 ACRES) = 164.68 MAXIMUM RELEASE RATE

PROPOSED CONDITIONS

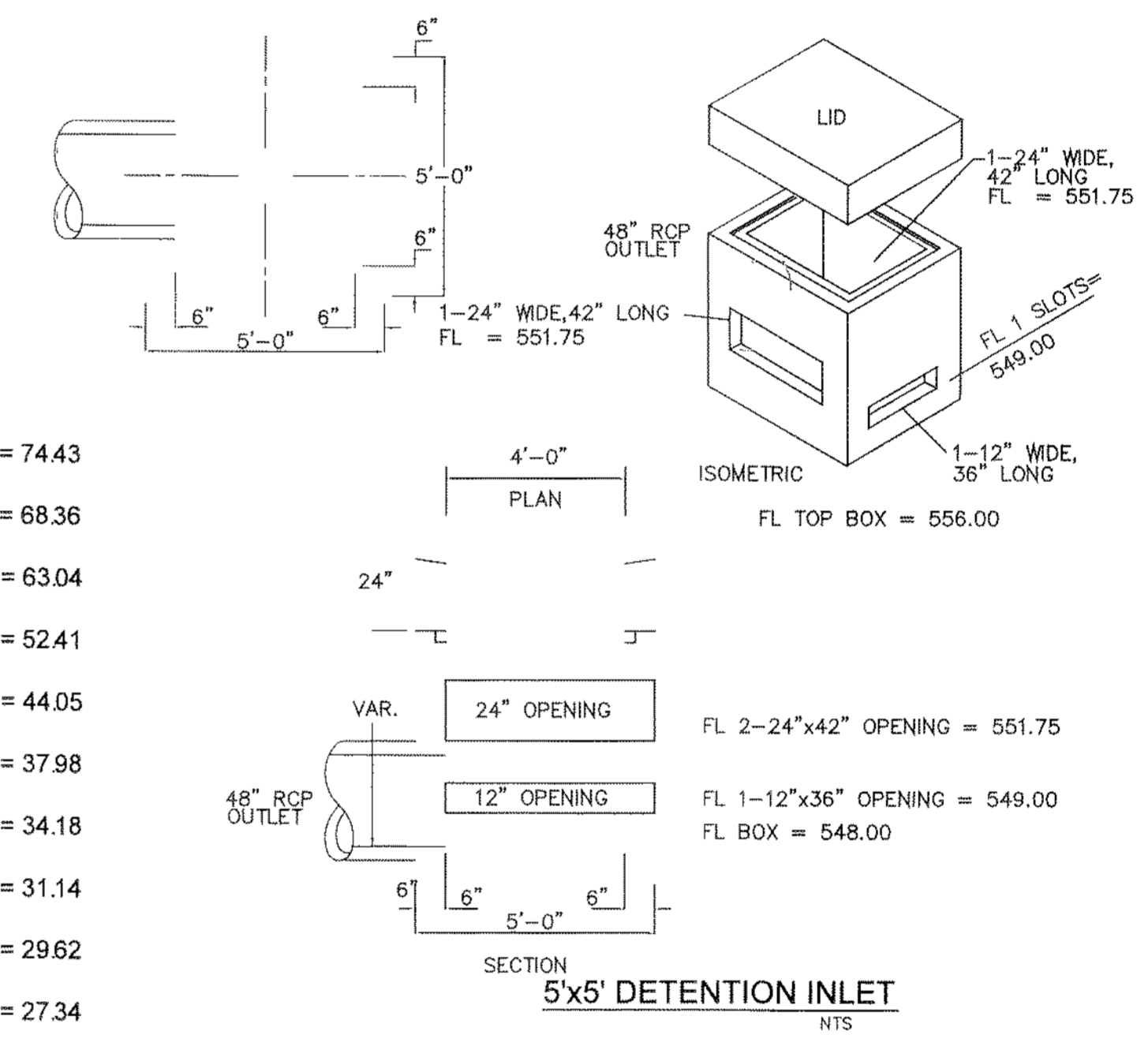
Q = C*I*A
C = 0.70 SCHOOL
Tc = 10 MINUTES
1100 = 9.8 in/hr
Q100 = (0.70)(9.8)(35.0 ACRES) = 240.10

| STORM DURATIONS | ONSITE DEVELOPED | STORM DURATIONS | OFFSITE UNDEVELOPED |
|-----------------|--|-----------------|---|
| 10 MINUTES | I = 9.8 Q = (0.70)*(9.8)*(35 ACRES) = 240.10 | 10 MINUTES | I = 9.8 Q = (0.35)*(9.8)*(21.7 ACRES) = 74.43 |
| 15 MINUTES | I = 9.0 Q = (0.70)*(9.0)*(35 ACRES) = 220.50 | 15 MINUTES | I = 9.0 Q = (0.35)*(9.0)*(21.7 ACRES) = 68.36 |
| 20 MINUTES | I = 8.3 Q = (0.70)*(8.3)*(35 ACRES) = 203.35 | 20 MINUTES | I = 8.3 Q = (0.35)*(8.3)*(21.7 ACRES) = 63.04 |
| 30 MINUTES | I = 6.9 Q = (0.70)*(6.9)*(35 ACRES) = 169.05 | 30 MINUTES | I = 6.9 Q = (0.35)*(6.9)*(21.7 ACRES) = 52.41 |
| 40 MINUTES | I = 5.8 Q = (0.70)*(5.8)*(35 ACRES) = 142.10 | 40 MINUTES | I = 5.8 Q = (0.35)*(5.8)*(21.7 ACRES) = 44.05 |
| 50 MINUTES | I = 5.0 Q = (0.70)*(5.0)*(35 ACRES) = 122.50 | 50 MINUTES | I = 5.0 Q = (0.35)*(5.0)*(21.7 ACRES) = 37.98 |
| 60 MINUTES | I = 4.5 Q = (0.70)*(4.5)*(35 ACRES) = 110.25 | 60 MINUTES | I = 4.5 Q = (0.35)*(4.5)*(21.7 ACRES) = 34.18 |
| 70 MINUTES | I = 4.0 Q = (0.70)*(4.0)*(35 ACRES) = 98.00 | 70 MINUTES | I = 4.0 Q = (0.35)*(4.0)*(21.7 ACRES) = 31.14 |
| 80 MINUTES | I = 3.7 Q = (0.70)*(3.7)*(35 ACRES) = 90.65 | 80 MINUTES | I = 3.7 Q = (0.35)*(3.7)*(21.7 ACRES) = 29.62 |
| 90 MINUTES | I = 3.5 Q = (0.70)*(3.5)*(35 ACRES) = 85.75 | 90 MINUTES | I = 3.5 Q = (0.35)*(3.5)*(21.7 ACRES) = 27.34 |

MAXIMUM STORM VOLUMES

| MINUTES | INFLOW | OUTFLOW |
|---------|---|--|
| 10 | (10 min)*(314.53 cfs)*(60 sec/min) = 188,718 cf | (0.50)*(20 min)*(164.68 cfs)*(60 sec/min) = 98,808 cf |
| 15 | (15 min)*(288.86 cfs)*(60 sec/min) = 259,974 cf | (0.50)*(25 min)*(164.68 cfs)*(60 sec/min) = 123,510 cf |
| 20 | (20 min)*(266.39 cfs)*(60 sec/min) = 319,668 cf | (0.50)*(30 min)*(164.68 cfs)*(60 sec/min) = 148,212 cf |
| 30 | (30 min)*(221.46 cfs)*(60 sec/min) = 398,628 cf | (0.50)*(40 min)*(164.68 cfs)*(60 sec/min) = 201,012 cf |
| 40 | (40 min)*(186.15 cfs)*(60 sec/min) = 446,760 cf | (0.50)*(50 min)*(164.68 cfs)*(60 sec/min) = 247,020 cf |
| 50 | (50 min)*(122.50 cfs)*(60 sec/min) = 481,440 cf | (0.50)*(60 min)*(101.68 cfs)*(60 sec/min) = 185,016 cf |

MAXIMUM VOLUME REQUIRED IS 201,012 CF AT THE 30 MIN. STORM DURATION
 MAXIMUM VOLUME PROVIDED IS 205,147 AT THE 30 MIN. STORM DURATION
 TOP OF POND = 557.00
 100 YEAR WATER SURFACE = 554.61 ws



SPECIFICATIONS

CONCRETE: Class 1 concrete with design strength of 4500 PSI at 28 days. Unit is of monolithic construction at floor and first stage of wall with sectional riser to required depth. Rated for H-20 Loading.

REINFORCEMENT: Grade 60 reinforced. No. 4 steel rebar to conform to ASTM A615 on required centers or equal.

C.I. CASTINGS: Cast iron frames and grates are manufactured of grey cast iron conforming to ASTM A48-76 Class 30.

| Q allowable OUT OF POND | Q actual OUT OF OUT FALL STRUCTURE | |
|-------------------------|------------------------------------|-------------|
| Q5 = 69.44 | 65.20 cfs | 553.11 W.S. |
| Q25 = 116.07 | 98.22 cfs | 553.78 W.S. |
| Q50 = 148.81 | 116.48 cfs | 554.33 W.S. |
| Q100 = 164.68 | 124.59 cfs | 554.61 W.S. |

RECORD DRAWING

This is to certify that changes and corrections have been made to conform to the contractor's record of this project.

Signed: *J. Glenn* Date: *8-4-09*
 Glenn Engineering Corporation



Consultants:

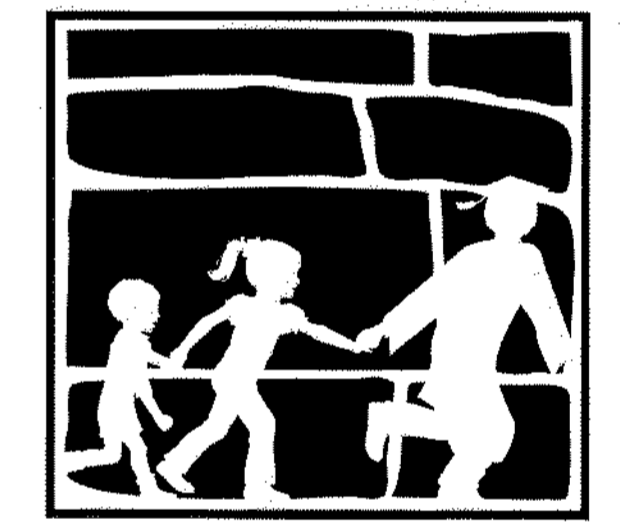
CIVIL:
GLENN ENGINEERING CORP

STRUCTURAL:
SHW GROUP, LLP

MEP:
ESTES McCCLURE & ASSOCIATES, INC. FOOD SERVICE;
JMK FOODSERVICE CONSULTING & DESIGN, LLC

LANDSCAPING:
RAMSEY LANDSCAPE ARCHITECTS, LLP

Final Plans for Bidding and Construction



Rockwall
INDEPENDENT SCHOOL DISTRICT

WILKERSON SANDERS
STADIUM RENOVATIONS
ROCKWALL, TEXAS

Project Number: 4107.048.00
 Drawing Date: 05/29/2008
 Drawn:
 Checked:
 Scale:
 ACAD File: 2008WILKERSON-SANDERS-REV8.d
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Revisions:

| NO. | DATE | REVISIONS |
|-----|----------|-------------------|
| 1 | 11/05/08 | CITY REVISIONS |
| 2 | 12/02/08 | CITY REVISIONS #2 |
| 3 | 12/12/08 | CITY REVISIONS #3 |
| 4 | 12/16/08 | CITY REVISIONS #4 |
| 5 | 01/26/09 | CITY REVISIONS #5 |
| 6 | 08/03/09 | RECORD SET |

Sheet Title:
DRAINAGE AREA CALCULATIONS

CG 1.07

Aug 03, 2009 - 3:31pm User: Rick
 \\Robert@c-drive\ROCK\SD\UTLEY\2008 ADDITIONS\IBID SET\2008 WILKERSON-SANDERS STADIUM\2008WILKERSON-SANDERS-REV8.dwg