## Inlet Design Calculations

| | | | |
|---|---|---|---|
| Project Name: | Costco Rockwall | Date: | 07/21/08 |
| Project No.: | 66000025 | Designed By: | KFD |
| Project Description: | | Checked By: | DKK |

| Inlet No. | Inlet Drainage Area | Design Storm Frequency | RUNOFF (Q = C I A) Time of Conc. $T_c$ | Rainfall Intensity I | Runoff Coeff. C | Area A | Runoff Q | Carryover from Upstream Inlet | Total Gutter Flow | Gutter Capacity | Gutter Slope | Crown Type | SELECTED INLET Length $L_t$ | Type | Inlet Capacity | Carry Over to Downstream Inlet |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (yrs) | (min) | (in/hr) | | (ac) | (cfs) | (cfs) | (cfs) | (cfs) | (%) | | (ft) | | (cfs) | (cfs) |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| A1 | A1 | 100 | 10 | 9.8 | 0.90 | 0.96 | 8.5 | - | 8.5 | - | - | N/A | 10 | IA CURB INLET AT LOW POINT | 20.5 | - |
| A3 | A3 | 100 | 10 | 9.8 | 0.90 | 0.50 | 4.4 | - | 4.4 | - | - | N/A | 5 | IA CURB INLET AT LOW POINT | 10.5 | - |
| A4 | A4 | 100 | 10 | 9.8 | 0.90 | 0.58 | 5.1 | - | 5.1 | - | - | N/A | 5 | IA CURB INLET AT LOW POINT | 10.5 | - |
| A5 | A5 | 100 | 10 | 9.8 | 0.90 | 0.81 | 7.1 | - | 7.1 | - | - | N/A | 10 | IA CURB INLET AT LOW POINT | 20.5 | - |
| A6 | A6 | 100 | 10 | 9.8 | 0.90 | 1.64 | 14.5 | - | 14.5 | - | - | N/A | 4x4 | V DROP INLET | 15.5 | - |
| B1 | B1 | 100 | 10 | 9.8 | 0.90 | 1.06 | 9.3 | - | 9.3 | - | - | N/A | 10 | IA CURB INLET AT LOW POINT | 20.5 | - |
| B2 | B2 | 100 | 10 | 9.8 | 0.90 | 0.83 | 7.3 | - | 7.3 | - | - | N/A | 10 | IA CURB INLET AT LOW POINT | 20.5 | - |
| C1 | C1 | 100 | 10 | 9.8 | 0.90 | 0.19 | 1.7 | - | 1.7 | - | - | N/A | 5 | I CURB INLET ON GRADE | 2.3 | - |
| C2 | C2 | 100 | 10 | 9.8 | 0.90 | 0.69 | 6.1 | - | 6.1 | - | - | N/A | 5 | IA CURB INLET AT LOW POINT | 10.5 | - |
| C3 | C3 | 100 | 10 | 9.8 | 0.90 | 0.40 | 3.5 | - | 3.5 | - | - | N/A | 10 | I CURB INLET ON GRADE | 5.8 | - |
| C4 | C4 | 100 | 10 | 9.8 | 0.90 | 1.16 | 10.2 | - | 10.2 | - | - | N/A | 10 | IA CURB INLET AT LOW POINT | 20.5 | - |
| D1 | D1 | 100 | 10 | 9.8 | 0.90 | 0.77 | 6.8 | - | 6.8 | - | - | N/A | 10 | IA CURB INLET AT LOW POINT | 20.5 | - |
| D2 | D2 | 100 | 10 | 9.8 | 0.90 | 0.98 | 8.6 | - | 8.6 | - | - | N/A | 10 | IA CURB INLET AT LOW POINT | 20.5 | - |
| D3 | D3 | 100 | 10 | 9.8 | 0.90 | 0.94 | 8.3 | - | 8.3 | - | - | N/A | 10 | IA CURB INLET AT LOW POINT | 20.5 | - |
| E1 | E1 | 100 | 10 | 9.8 | 0.90 | 0.61 | 5.4 | - | 5.4 | - | - | N/A | 5 | IA CURB INLET AT LOW POINT | 10.5 | - |
| E2 | E2 | 100 | 10 | 9.8 | 0.90 | 0.14 | 1.2 | - | 1.2 | - | - | N/A | 5 | IA CURB INLET AT LOW POINT | 10.5 | - |
| E3 | E3 | 100 | 10 | 9.8 | 0.90 | 0.08 | 0.7 | - | 0.7 | - | - | N/A | 5 | IA CURB INLET AT LOW POINT | 10.5 | - |
| F1 | F1 | 100 | 10 | 9.8 | 0.90 | 0.27 | 2.4 | - | 2.4 | - | - | N/A | 5 | III-A COMBINATION INLET AT LOW GRADE | 12.0 | - |
| F2 | F2 | 100 | 10 | 9.8 | 0.90 | 0.06 | 0.5 | - | 0.5 | - | - | N/A | 5 | III-A COMBINATION INLET AT LOW GRADE | 12.0 | - |
| F3 | F3 | 100 | 10 | 9.8 | 0.90 | 0.07 | 0.6 | - | 0.6 | - | - | N/A | 5 | III-A COMBINATION INLET AT LOW GRADE | 12.0 | - |
| F4 | F4 | 100 | 10 | 9.8 | 0.90 | 0.07 | 0.6 | - | 0.6 | - | - | N/A | 5 | III-A COMBINATION INLET AT LOW GRADE | 12.0 | - |
| F5 | F5 | 100 | 10 | 9.8 | 0.90 | 0.07 | 0.6 | - | 0.6 | - | - | N/A | 5 | III-A COMBINATION INLET AT LOW GRADE | 12.0 | - |
| F6 | F6 | 100 | 10 | 9.8 | 0.90 | 0.07 | 0.6 | - | 0.6 | - | - | N/A | 5 | III-A COMBINATION INLET AT LOW GRADE | 12.0 | - |
| F7 | F7 | 100 | 10 | 9.8 | 0.90 | 0.06 | 0.5 | - | 0.5 | - | - | N/A | 5 | III-A COMBINATION INLET AT LOW GRADE | 12.0 | - |

NOTES:
1. THE CAPACITY OF CURB INLETS ON GRADE WAS OBTAINED FROM FIGURE 3.5a OF THE CITY OF ROCKWALL STANDARDS OF DESIGN AND CONSTRUCTION, AUGUST 2003.
2. THE CAPACITY OF CURB INLETS AT LOW POINTS WAS OBTAINED FROM FIGURE 3.7 USING A MAXIMUM DESIRED FLOW DEPTH AT THE INLET OF 0.5'.
3. THE CAPACITY OF DROP INLETS AT LOW POINTS WAS OBTAINED FROM FIGURE 3.16 USING A MAXIMUM DESIRED FLOW DEPTH AT THE INLET OF 0.5'.

## HYDROLOGY CALCULATIONS

| DRAINAGE AREA ID | RUNOFF COEFF. C | TIME OF CONC. Tc (MIN.) | RAINFALL INTENSITY I100 (IN/HR) | DRAINAGE AREA (ACRES) | PEAK RUNOFF Q100 (CFS) |
|---|---|---|---|---|---|
| A-1 | 0.9 | 10 | 9.8 | 0.96 | 8.4 |
| A-2 | 0.9 | 10 | 9.8 | 0.26 | 2.3 |
| A-3 | 0.9 | 10 | 9.8 | 0.50 | 4.4 |
| A-4 | 0.9 | 10 | 9.8 | 0.58 | 5.1 |
| A-5 | 0.9 | 10 | 9.8 | 0.81 | 7.2 |
| A-6 | 0.9 | 10 | 9.8 | 1.64 | 14.5 |
| B-1 | 0.9 | 10 | 9.8 | 1.06 | 9.3 |
| B-2 | 0.9 | 10 | 9.8 | 0.83 | 7.4 |
| C-1 | 0.9 | 10 | 9.8 | 0.19 | 1.7 |
| C-2 | 0.9 | 10 | 9.8 | 0.69 | 6.1 |
| C-3 | 0.9 | 10 | 9.8 | 0.40 | 3.5 |
| C-4 | 0.9 | 10 | 9.8 | 1.16 | 10.2 |
| D-1 | 0.9 | 10 | 9.8 | 0.77 | 6.8 |
| D-2 | 0.9 | 10 | 9.8 | 0.98 | 8.6 |
| D-3 | 0.9 | 10 | 9.8 | 0.94 | 8.3 |
| E-1 | 0.9 | 10 | 9.8 | 0.61 | 5.4 |
| E-2 | 0.9 | 10 | 9.8 | 0.14 | 1.3 |
| E-3 | 0.9 | 10 | 9.8 | 0.08 | 0.7 |
| F-1 | 0.9 | 10 | 9.8 | 0.27 | 2.4 |
| F-2 | 0.9 | 10 | 9.8 | 0.06 | 0.5 |
| F-3 | 0.9 | 10 | 9.8 | 0.07 | 0.6 |
| F-4 | 0.9 | 10 | 9.8 | 0.07 | 0.6 |
| F-5 | 0.9 | 10 | 9.8 | 0.07 | 0.6 |
| F-6 | 0.9 | 10 | 9.8 | 0.07 | 0.6 |
| F-7 | 0.9 | 10 | 9.8 | 0.06 | 0.5 |
| G-1 | 0.9 | 10 | 9.8 | 1.33 | 11.8 |
| G-2 | 0.9 | 10 | 9.8 | 0.80 | 7.0 |
| H-1 | 0.9 | 10 | 9.8 | 0.34 | 3.0 |
| H-2 | 0.9 | 10 | 9.8 | 1.32 | 11.7 |
| H-3 | 0.35 | 10 | 9.8 | 1.03 | 3.5 |
| H-4 | 0.9 | 10 | 9.8 | 0.44 | 3.8 |
| P-1 | 0.35 | 10 | 9.8 | 2.28 | 7.8 |
| R-1 | 0.9 | 10 | 9.8 | 0.19 | 1.7 |
| R-2 | 0.9 | 10 | 9.8 | 0.19 | 1.6 |
| R-3 | 0.9 | 10 | 9.8 | 0.16 | 1.4 |
| R-4 | 0.9 | 10 | 9.8 | 0.21 | 1.8 |
| R-5 | 0.9 | 10 | 9.8 | 0.18 | 1.6 |
| R-6 | 0.9 | 10 | 9.8 | 0.18 | 1.6 |
| R-7 | 0.9 | 10 | 9.8 | 0.21 | 1.8 |
| R-8 | 0.9 | 10 | 9.8 | 0.12 | 1.1 |
| R-9 | 0.9 | 10 | 9.8 | 0.16 | 1.4 |
| R-10 | 0.9 | 10 | 9.8 | 0.19 | 1.7 |
| R-11 | 0.9 | 10 | 9.8 | 0.19 | 1.6 |
| R-12 | 0.9 | 10 | 9.8 | 0.16 | 1.4 |
| R-13 | 0.9 | 10 | 9.8 | 0.21 | 1.8 |
| R-14 | 0.9 | 10 | 9.8 | 0.18 | 1.6 |
| R-15 | 0.9 | 10 | 9.8 | 0.18 | 1.6 |
| R-16 | 0.9 | 10 | 9.8 | 0.20 | 1.8 |
| R-17 | 0.9 | 10 | 9.8 | 0.37 | 3.2 |
| R-18 | 0.9 | 10 | 9.8 | 0.09 | 0.8 |
| R-19 | 0.9 | 10 | 9.8 | 0.06 | 0.5 |
| R-20 | 0.9 | 10 | 9.8 | 0.03 | 0.3 |
| R-21 | 0.9 | 10 | 9.8 | 0.05 | 0.4 |
| R-22 | 0.9 | 10 | 9.8 | 0.03 | 0.3 |

03/06/09

**RECORD DRAWING**

THIS RECORD DRAWING HEREIN REFLECTS TO THE BEST OF THE DESIGN ENGINEER'S KNOWLEDGE, THE APPROXIMATE LOCATION OF THE CONSTRUCTED WORK, USING INFORMATION AS PROVIDED BY THE CONTRACTORS AND SURVEYED GRADES.

| No. | Date | Revisions | App. |
|---|---|---|---|
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Kimley-Horn and Associates, Inc.
5750 Genesis Court, Suite 200
Frisco, Texas 75034
Tel. No.(972) 335-3580
Fax No.(972) 335-3779

STATE OF TEXAS
DAVID K. KOCHALKA
87781
LICENSED
PROFESSIONAL ENGINEER
6-11-08

COSTCO WHOLESALE
ROCKWALL, TEXAS

STORM SEWER CALCULATIONS

| | |
|---|---|
| Scale: | AS SHOWN |
| Designed by: | KFD |
| Drawn by: | KFD |
| Checked by: | DKK |
| Date: | August 14, 2008 |
| Project No. | 066000025 |

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