



May 18, 2015

City of Colorado Springs
Engineering Development Review Division
30 S. Nevada, Suite 401
Colorado Springs, CO 80903

ATTN: Ms. Lydia Maring P.E.

RE: Amendment to "Master Development Drainage Plan for Indigo Ranch North at Stetson Ridge & Final Drainage Report for Indigo Ranch North at Stetson Ridge Filings 8, 9, 10" Specifically the public drainage facilities for Filing No. 10.

Dear Lydia:

Please find this letter acceptable to revising the Filing No. 10 Public Drainage Facilities (Non-reimbursable) cost opinion that was previously approved with the "Master Development Drainage Plan for Indigo Ranch North at Stetson Ridge & Final Drainage Report for Indigo Ranch North at Stetson Ridge Filings 8, 9, 10," by Classic Consulting Engineers & Surveyors, LLC, dated December 2012.

The approved report erroneously included public drainage facilities (storm sewer) within the Filing No. 10 boundary, which Filing No. 10 contains zero storm sewer facilities. Subsequently, Classic Homes posted a financial assurance bond for the amount listed in the approved report (\$12,190.00).

Therefore, since there are no public or private storm sewer facilities within Indigo Ranch North at Stetson Ridge Filing No. 10, please release the posted bond for \$12,190.00.

If you have any questions, please do not hesitate to contact me.

Sincerely,

Matthew Larson
Project Engineer

CITY OF COLORADO SPRINGS:

Filed in accordance with Section 7.7.906 of the Code of the City of Colorado Springs, 2001, as amended.

for Lydia A. Maring
City Engineer

5/19/15
Date

Conditions:





Innovative Design. Classic Results.

**MASTER DEVELOPMENT DRAINAGE PLAN
FOR
INDIGO RANCH NORTH AT STETSON RIDGE
&
FINAL DRAINAGE REPORT
FOR
INDIGO RANCH NORTH AT STETSON RIDGE
FILINGS 8, 9, & 10**

Prepared for:
Classic Communities
6385 Corporate Drive, Suite 200
Colorado Springs, CO 80919

December 2012

ATTN: Joe Loidolt

Job no. 1115.00



**MASTER DEVELOPMENT DRAINAGE PLAN FOR
INDIGO RANCH NORTH AT STETSON RIDGE &
FINAL DRAINAGE REPORT FOR INDIGO RANCH NORTH AT
STETSON RIDGE FILINGS 8, 9, & 10.**

DRAINAGE REPORT STATEMENT

ENGINEER'S STATEMENT:

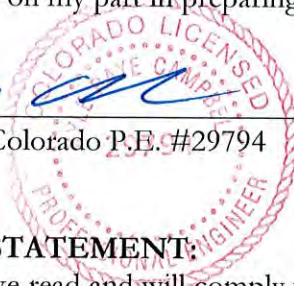
The attached drainage plan and report were prepared under my direction and supervision and are correct to the best of my knowledge and belief. Said drainage report has been prepared according to the criteria established by the City of Colorado Springs for drainage reports and said report is in conformity with the master plan of the drainage basin. I accept responsibility for any liability caused by any negligent acts, errors, or omissions on my part in preparing this report.



Kyle R. Campbell, Colorado P.E. #29794


12.21.12

Date



DEVELOPER'S STATEMENT:

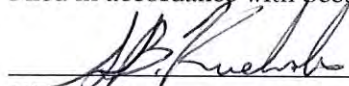
I, the developer, have read and will comply with all of the requirements specified in this drainage report and plan.

Business Name: Classic Communities
By: 

Title: President
Address: 6385 Corporate Drive
Colorado Springs, CO 80919

CITY OF COLORADO SPRINGS:

Filed in accordance with Section 7.7.906 of the Code of the City of Colorado Springs, 2001, as amended.



City Engineer

12/21/12

Date

Conditions:

HDPE only allowed up to 36"



**MASTER DEVELOPMENT DRAINAGE PLAN FOR
INDIGO RANCH NORTH AT STETSON RIDGE &
FINAL DRAINAGE REPORT FOR INDIGO RANCH NORTH AT
STETSON RIDGE FILINGS 8, 9, & 10.**

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PURPOSE

This document is the Master Development Drainage Plan (M.D.D.P.) for Indigo Ranch North at Stetson Ridge and the Final Drainage Report for Indigo Ranch North at Stetson Ridge Filings 8, 9, & 10. The purpose of this report is to identify onsite and offsite drainage patterns, storm sewer, inlet locations, and areas tributary to the site, and to safely route developed storm water runoff to adequate outfall facilities. This report will also discuss the required channel improvements within Sand Creek Channel that sits adjacent to the proposed site.

GENERAL DESCRIPTION

The Indigo Ranch North M.D.D.P. study area and overall site boundary is 150.84 acres of single-family housing, a multi-family housing parcel, portions of a regional park, and two commercial use parcels. Collector and residential level roadways serve the entire area with access off the major arterial roadway of Dublin Boulevard. There is no roadway connection from the site onto existing Marksheffel Road. The planned development for Indigo Ranch North at Stetson Ridge is per the approved Master Plan for Stetson Ridge and there are no changes being proposed from that approved plan. All developed runoff from the proposed M.D.D.P. study area is permitted to be routed without detention into the improved Sand Creek Channel to the west of the site. Individual storm water quality treatment is required for the multi-family residential and commercial parcels.

The development area is located within Section 8, Township 13 South, and Range 65 West of the Sixth Principal Meridian in the City of Colorado Springs, County of El Paso, and State of Colorado. The Final Plat associated with this Final Drainage Report is for Filing No. 8 (26.085 acres), Filing No. 9 (12.469 acres), and Filing No. 10 (10.929 acres).

The site is bound to the south by proposed Dublin Boulevard, with Indigo Ranch at Stetson Ridge Filing No. 5 and unplatted commercial land across Dublin Blvd. It is bound to the west by Sand Creek and multiple existing single-family lots across the channel. The site is bound to the east by existing Marksheffel Road, with Banning Lewis Ranch across Marksheffel Rd. To the north of the site is existing unplatted land and further to the north is existing Woodmen Road. The existing zoning of the proposed site is A (Agricultural) AO (Airport Overlay) with some SS (Stream Side). The proposed zoning is PUD AO.

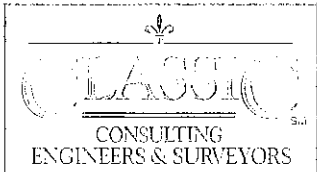


The majority of the on-site soils are of Hydrologic Group “A” Blakcland loamy sand, with a portion of Group “B” Truckton sandy loam in the southwest of the site. The soils types are determined by the “Web Soil Survey National Cooperative Soil Survey,” prepared by the Natural Resources Conservation Service (see map in Appendix).

EXISTING DRAINAGE CONDITIONS

The 150.84 acre M.D.D.P. study area is entirely within the Sand Creek Drainage Basin, more specifically the land tributary to Reach SC-7 (Stations 660 – 700) of the main Sand Creek Channel. As such, this area was studied in detail within the “Sand Creek Drainage Basin Planning Study Preliminary Design Report,” by Kiowa Engineering Corporation, last revised March 1996. This Drainage Basin Planning Study will be referred to as the ‘D.B.P.S.’ for the remainder of this report. The D.B.P.S. specifies channel improvements for all of Sand Creek and its tributary branches as well as details locations of regional detention/storm water quality facilities along the channel corridors. Improvements in conformance to the D.B.P.S. have been made to all of Sand Creek directly downstream of this development with the construction of the improvements, “Sand Creek Channel Improvements Phase II B” that were completed as a part of the Ridgeview at Stetson Ridge Filing No. 27 development. Improvements between Dublin Boulevard and Stetson Hills Boulevard have also been completed further south of the site. Sand Creek Basin and thus Sand Creek Channel is one of the largest within the City of Colorado Springs and contains an Effective FEMA 100-year Floodplain (shown on the Drainage Map). The limits of the 100-year Floodplain are required to be revised with the United States Federal Emergency Management Agency (FEMA) and have been revised as necessary with the downstream improvements. Concurrently with this Master Drainage Development Plan (M.D.D.P.) a Conditional Letter of Map Revision (CLOMR) is being prepared for the portion of the Sand Creek Channel through the proposed site. Portions of the Sand Creek Channel have also been delineated as containing wetlands, and appropriate permitting will be obtained prior to improvements to Sand Creek taking place.

The 100-year runoff rate within Sand Creek Channel in the existing and developed conditions is as determined with the D.B.P.S. (Developed $Q_{100}=2460$ cfs as interpolated using DBPS Preliminary Design Profiles pages P-12 & P-13. The site is within stations 6+50 – 7+10). The runoff in the existing drainage



conditions is higher than that in the developed due to the construction of detention basins as development upstream occurs. It should be noted that the D.B.P.S. requires four (4) detention basins to be constructed in the upstream watershed near Woodmen Road to regulate flows as future development occurs but a subsequent MDDP for that northerly area revised it to only two (2). There are no proposed detention facilities within the reach of Sand Creek through the proposed site. There is a detention facility partially constructed just north (upstream) of Woodmen Road along Sand Creek Channel and our assumption is that it will limit the ultimate 10 and 100 year runoff rates to those specified within the D.B.P.S. Since there is no detention required for the proposed site due to Pond 2 accounting for the previously approved Master Plan developed conditions being conveyed to the facility (as well as this site and other to the south contributing to the costs of Pond 2), all of the developed runoff is to be collected in a storm sewer system and outfall directly into Sand Creek Channel, there is no need to quantify existing condition flow rates from the proposed site adjacent to previously developed Ridgeview at Stetson Hills Filing No. 27. Those improvements consist of a channel re-alignment with sloping rip-rap drop structures, select side bank stabilization and containment embankment construction. These improvements are completed and have been accepted by the City for maintenance.

The directly downstream Sand Creek Channel and its improvements were last detailed in the “Master Development Drainage Plan Amendment No. II for the Easterly Portion of Ridgeview Subdivision and Preliminary Drainage Report for the Northeasterly Portion of Ridgeview Subdivision and Phase II Sand Creek Channel Improvements,” by JR Engineering, last revised September 2004. This report also used the runoff rates determined within the D.B.P.S. and designed channel improvements based upon those values. A copy of the HEC-RAS analysis of the downstream channel improvements has been obtained from FEMA for the purposes of the CLOMR and Sand Creek channel design through the proposed site.

The majority of the proposed site in its existing (natural) condition drains directly west into the un-improved Sand Creek Channel. Approximately half of the site has been used in the past as a “borrow” site, meaning it was excavated of material for the home construction that has taken place south of Dublin Blvd. An approved grading plan was previously completed for all of the existing grading activities. With the construction of the subdivisions and infrastructure to the south, a storm main was constructed within Future Dublin Blvd. with storm stubs to the north to account for future development of the proposed M.D.D.P. study area. This storm system was designed with the “Final Drainage Report for Indigo Ranch at



Stetson Ridge Filing No. 3 & 4 and Master Development Drainage Plan Amendment for Stetson Ridge,” by Classic Consulting Engineers & Surveyors, LLC, revised April 2005 and with the “Preliminary/Final Drainage Report for Peterson Road at Indigo Ranch Filing No. 1,” by Classic Consulting Engineers & Surveyors, LLC, revised November 2006. This system currently intercepts the undeveloped runoff that drains directly south toward Dublin Blvd.

PROPOSED DRAINAGE CONDITIONS

With the development of Indigo Ranch at Stetson Ridge North, the portion of Sand Creek adjacent to the development is required to be improved as recommended in the “Sand Creek Drainage Basin Planning Study Preliminary Design Report,” by Kiowa Engineering Corporation, last revised March 1996. With the Sand Creek channel improvements and overall regional detention facilities along the Sand Creek Channel, on-site detention facilities are not required for any of the proposed development within the 150.84 acre boundary as these developed flows were accounted for in the Pond 2 design. All of the developed runoff is collected in proposed and future storm sewer inlets and pipes and routed to the Sand Creek Channel. Until such time that the final channel improvements are constructed, adequate erosion protection shall be placed at the first phase (Central Outfall on map) storm sewer outfall. Permanent storm water quality facilities are not required for the proposed single-family development, but shall be provided for the commercial and multi-family land use parcels. Separate final drainage reports are required with development of those parcels that outline such storm water quality facility and storm sewer systems. The developed site generally drains to the south-west. Developed C values were used based upon the proposed land use and are as follows:

<i>Land Use</i>	<i>C Runoff Coefficient – 5 yr.</i>	<i>C Runoff Coefficient – 100 yr.</i>
Right-of-way	0.90	0.95
Smaller Single Family Lots	0.60	0.70
Larger Single Family Lots	0.50	0.60
Multi-Family	0.75	0.85
Commercial	0.90	0.90



Per current City of Colorado Springs Drainage Criteria for stormwater capacity within street sections, the following applies:

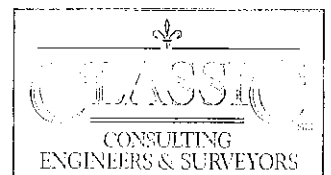
<i>Street Type</i>	<i>Allowable – Initial Storm (5 yr)</i>	<i>Allowable–Major Storm (100 yr)</i>
Residential w/Ramp Curb	Flow spread to crown. Maximum of 20 cfs per side.	12” maximum depth at flowline with no adjacent flooding.
Residential w/Vertical Curb	6” allowable depth at flowline. Maximum of 34 cfs per side.	12” maximum depth at flowline with no adjacent flooding.
Collector Street	6” allowable depth at flowline, maximum of 34 cfs per side, no overtopping of crown.	12” maximum depth at flowline with no adjacent flooding.

For more exact allowable curb capacities for each curb and roadway type at varying street slopes the Curb Capacity Equations were used as shown on the charts located in the front of the City of Colorado Springs Drainage Criteria Manual.

This report provides detailed storm sizing and routing for all of the future single-family home lots and roadway infrastructure associated with Indigo Ranch North at Stetson Ridge. However, it is only the ‘Final Drainage Report’ for Filings 8, 9, & 10 (Shown on the Developed Conditions Map). All future filings of Indigo Ranch North at Stetson Ridge will require separate Final Drainage Reports/Letters. A detailed description of the developed runoff at each Design Point is as follows:

NORTHERN STORM SYSTEM:

Design Point 1 ($Q_5 = 13.7$ cfs, $Q_{100} = 28.2$ cfs) is the runoff collected from Basins KK and II, located at the very northern end of the Indigo Ranch at Stetson Ridge North MDDP area. Basin KK is 3.25 acres of future home lots, roadway, and open space between the back of the lots and existing Marksheffel Road. The runoff from this basin drains to the north-east to the intersection of Issaquah Drive and Silver Buckle Drive where a concrete cross pan passes the water onto Basin II. Basin II is 2.18 acres of home lots that drain north-east to the low point at DP-1. The runoff at this point is below the maximum limits for the initial storm event per the City of Colorado Springs for a 3% ramp curb, interpolated as $Q_5 = 19.5$ cfs. A future 14’ D-10-R sump inlet will intercept all of the runoff and convey it within Pipe 1, 30” HDPE storm to the east to the storm main within Renegade Ridge Drive.



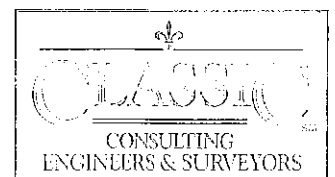
Design Point 2 ($Q_5 = 4.2$ cfs, $Q_{100} = 8.4$ cfs) is the runoff collected from Basin JJ, 1.48 acres of larger sized home lots. The stormwater from this basin drains south down Silver Buckle Drive to the future 6' D-10-R sump inlet at this design point. Storm Pipe 2 (30" HDPE, $Q_5 = 17.6$ cfs, $Q_{100} = 36.1$ cfs) conveys the combined runoff from Pipe 1 and this design point to the east and south within Renegade Ridge Drive to the storm main within Mustang Rim Drive, Pipe 7.

Design Point 3 ($Q_5 = 8.4$ cfs, $Q_{100} = 17.1$ cfs) is the runoff at this location of the ramp curb of Silver Buckle Drive from Basin R, 2.96 acres of single family home lots and roadway. The runoff at this point is below the maximum allowed for the initial storm event per City criteria for a ramp curb at 2%, interpolated as $Q_5 = 15.9$ cfs. This stormwater continues within the roadway curb and gutter to the cross pan at the Issaquah Drive intersection and flows south to Design Point 4.

Design Point 4 ($Q_5 = 17.1$ cfs, $Q_{100} = 34.4$ cfs) is the runoff collected from Basin S, 1.47 acres of smaller home lots and Issaquah Drive and the DP-3 surface flows. The curb approaching this future 20' D-10-R sump inlet is vertical curb and gutter at 4.0% slope. The allowable initial 5-yr storm event flow per the City criteria for vertical curb at 4% is interpolated as the maximum $Q_5 = 34.0$ cfs. A future 20' D-10-R sump inlet will intercept this entire runoff and the 36" outfall main (Pipe 4, $Q_5 = 29.3$ cfs, $Q_{100} = 59.6$ cfs) will convey the combined flows, from this design point and DP-5, to the west within Mustang Rim Drive.

Design Point 5 ($Q_5 = 13.0$ cfs, $Q_{100} = 27.0$ cfs) is the runoff from Basin T, 3.27 acres of smaller home lots and Issaquah Drive and Basin U, 2.34 acres of smaller lots, Mustang Rim Drive, and open space between Marksheffel Dr. and the proposed home lots. The curb approaching this future 14' D-10-R sump inlet from the north is ramp curb and gutter at 4.0% slope. The allowable initial 5-yr storm event flow per the City criteria for ramp curb at 4% is interpolated as the maximum $Q_5 = 20.0$ cfs. A future 14' D-10-R sump inlet will intercept this entire runoff and Pipe 3 (30" HDPE) will convey the runoff to the inlet at DP-4, where the 36" outfall main (Pipe 4) carries the runoff west within Mustang Rim Drive.

Design Point 6 ($Q_5 = 4.8$ cfs, $Q_{100} = 9.9$ cfs) is the runoff from Basin BB, 1.66 acres of smaller home lots and Mustang Rim Drive. The curb approaching this future 10' D-10-R at-grade inlet is ramp curb and gutter at 3.5% slope. The allowable initial 5-yr storm event flow per the City criteria for ramp curb at 3.5% is interpolated as the maximum $Q_5 = 20$ cfs. A future 10' D-10-R at-grade inlet will intercept a portion of



this runoff and an 18" storm main (Pipe 5, $Q_5 = 3.3$ cfs, $Q_{100} = 5.4$ cfs) will convey the intercepted flows to the 36" main within Mustang Rim Drive (Pipe 6, $Q_5 = 31.0$ cfs, $Q_{100} = 61.9$ cfs). The remaining water not intercepted by this 10' at-grade inlet surface drain to the sump inlet at DP-7. The 36" storm main combines with storm Pipe 2 at a manhole at the intersection of Mustang Rim Drive and Renegade Ridge Drive, and the outfall Pipe 7 (42"/48" HDPE, $Q_5 = 47.1$ cfs, $Q_{100} = 94.8$ cfs) continues west toward Sand Creek within Mustang Rim Drive.

Design Point 7 ($Q_5 = 15.0$ cfs, $Q_{100} = 31.9$ cfs) is the runoff from Basins P, HH, and the flow-by from DP-6. Basin P is 3.85 acres of larger home lots and Renegade Ridge Drive, and Basin H is 1.92 acres of the fronts of the home lots and roadway. The curb along Renegade Ridge Drive as it approaches Mustang Rim Drive is ramp curb and gutter at 4.0% slope. The curb along Mustang Rim as it approaches this future inlet is vertical curb and gutter at a 4% slope. At no times is the initial storm flow larger than the allowable initial 5-yr storm event flow per the City criteria. A future 18' D-10-R sump inlet will intercept this entire runoff and a 30" storm lateral will convey the runoff to the 48" main running west to Sand Creek.

Design Point 8 ($Q_5 = 12.3$ cfs, $Q_{100} = 24.6$ cfs) is the runoff collected from Basin M, 4.19 acres of proposed home lots, Mustang Rim Drive, Dancing Wind Drive and a portion of Issaquah Drive. The stormwater from this basin drains around this block of home lots within the roadways to the future 12' D-10-R sump inlet at this design point. A 24" storm lateral conveys the intercepted runoff to the storm main within Mustang Rim Drive (Pipe 8, 48" HDPE, $Q_5 = 70.7$ cfs, $Q_{100} = 143.8$ cfs) which continues west and north toward DP-9 and Sand Creek.

Design Point 9 ($Q_5 = 7.7$ cfs, $Q_{100} = 15.9$ cfs) is the runoff collected from Basin N, 3.15 acres of larger sized home lots and Dancing Wind Drive. The stormwater from this basin drains north down the roadway and into the cul-de-sac bulb where a future 6' D-10-R sump inlet will intercept it. An 18" storm lateral conveys the runoff to the storm main from Mustang Rim Drive (Pipe 9, 48" HDPE, $Q_5 = 73.5$ cfs, $Q_{100} = 149.7$ cfs). The 48" HDPE main outfalls directly into the Sand Creek Channel improvements where riprap and adequate erosion control prevention will be installed. As previously mentioned, the proposed site is exempt from detention requirements and storm water quality for this system is not-warranted due to the proposed tributary land use being entirely of single family development.



CENTRAL STORM SYSTEM:

A portion of the Indigo Ranch North MDDP study area was included as the northerly limits to the study titled, "Final Drainage Report for Indigo Ranch at Stetson Ridge Filing No. 3 & 4 and Master Development Drainage Plan Amendment for Stetson Ridge," by Classic Consulting Engineers & Surveyors, LLC, last revised April 2005. This report and drainage design is in conformance with the previous drainage analysis.

Design Point 11 ($Q_5 = 14.2$ cfs, $Q_{100} = 28.4$ cfs) is the runoff from Basins L and Y. Basin L is 3.07 acres of smaller sized home lots and Dancing Wind Drive. Basin Y is 1.65 acres of smaller sized home lots and Mustang Rim Drive. A future 20' at-grade D-10-R inlet is to be installed at this location in order to prevent exceeding the maximum flow within the street section in the minor event storm. This at-grade inlet sits along Mustang Rim Drive within a vertical curb and gutter section at a 2.0% slope (allowable 5-yr capacity 24.1 cfs). Storm Pipe 11 (24" HDPE, $Q_5 = 10.4$ cfs, $Q_{100} = 18.0$ cfs) conveys the intercepted runoff by this inlet to the west to the Mustang Rim Drive and Issaquah Drive intersection. The stormwater not intercepted by this inlet, continues on the roadway surface to the west toward DP-14.

Design Point 12 ($Q_5 = 13.6$ cfs, $Q_{100} = 27.3$ cfs) is the runoff from Basin W, 4.62 acres of smaller sized home lots and Issaquah Drive, north of the eastern most roundabout. A proposed (Filing 9) 14' at-grade D-10-R inlet will intercept a large portion of this runoff, while the remaining stormwater continues south to DP-14. The curb approaching this inlet is a ramp curb and gutter at 2.5%, interpolated maximum City allowable 5-year flow is 17.8 cfs. Storm Pipe 14 (18" HDPE, $Q_5 = 8.6$ cfs, $Q_{100} = 13.3$ cfs) conveys the intercepted runoff by this inlet to the main within Mustang Rim Drive from Design Point 11. Pipe 15 (30" HDPE, $Q_5 = 23.5$ cfs, $Q_{100} = 39.2$ cfs) contains the combined runoff from Pipe 11, Pipe 14, and Pipe 12 (Design Point 13) and connects with the rest of the storm system at a manhole located at this Mustang Rim Drive and Issaquah Drive intersection.

Design Point 13 ($Q_5 = 8.8$ cfs, $Q_{100} = 17.7$ cfs) is the runoff from Basin X, 3.27 acres of smaller sized home lots, and Mustang Rim Drive. A proposed 14' at-grade D-10-R inlet will intercept a large portion of this runoff, while the remaining stormwater continues south to DP-14. The curb approaching this inlet is a ramp curb and gutter at 2.0%, interpolated maximum City allowable 5-year flow is 15.9 cfs. Storm Pipe 12 (18" HDPE, $Q_5 = 6.3$ cfs, $Q_{100} = 10.8$ cfs) conveys the intercepted runoff by this inlet to the main within



Mustang Rim Drive from Design Point 11. Pipe 13 (30" HDPE, $Q_5 = 15.7$ cfs, $Q_{100} = 27.1$ cfs) represents the Mustang Rim main after the connection of this 18" lateral but prior to that of the connection of Pipe 14.

Design Point 14 ($Q_5 = 12.5$ cfs, $Q_{100} = 33.1$ cfs) is the runoff from Basin AA, 0.74 acres of home lots, adjacent undeveloped area, and a portion of the roundabout of Issaquah Drive. This inlet also receives the runoff not collected by the at-grade inlets at Design Points 11, 12, & 13. A proposed 18' D-10-R sump inlet will intercept this entire runoff prior to roundabout. A 24" HDPE storm lateral will convey the intercepted runoff to the main within Issaquah Drive (Pipe 19, 42" HDPE, $Q_5 = 47.5$ cfs, $Q_{100} = 89.6$ cfs).

Design Point 15 ($Q_5 = 8.3$ cfs, $Q_{100} = 17.0$ cfs) is the runoff from Basin V, 2.95 acres of smaller sized home lots and Issaquah Drive, north of the eastern most roundabout. A proposed 8' D-10-R at-grade inlet will intercept a large portion of this runoff, while the remaining stormwater continues south to DP-17. The curb approaching this inlet is a ramp curb and gutter at 2.5%, interpolated maximum City allowable 5-year flow is 17.8 cfs. Storm Pipe 16 (18" HDPE, $Q_5 = 4.8$ cfs, $Q_{100} = 5.9$ cfs) conveys the intercepted runoff by this inlet to the manhole located at the southerly Mustang Rim Drive and Issaquah Drive intersection.

Design Point 16 ($Q_5 = 11.4$ cfs, $Q_{100} = 22.6$ cfs) is the runoff from Basin H, 3.73 acres of smaller sized home lots and Indian Feather Drive, between Mustang Rim Drive and Issaquah Drive. A proposed 14' D-10-R at-grade inlet will intercept a large portion of this runoff, while the remaining stormwater continues east then south to DP-17. The curb approaching this inlet is a vertical curb and gutter at 1.8%, interpolated maximum City allowable 5-year flow is 22.8 cfs. Storm Pipe 17 (18" HDPE, $Q_5 = 7.8$ cfs, $Q_{100} = 13.0$ cfs) conveys the intercepted runoff by this inlet to the manhole located at the southerly Mustang Rim Drive and Issaquah Drive intersection. At this proposed storm manhole, the stormwater within Pipes 15, 16, & 17 converge and outfall to the south within Pipe 18 (36" HDPE, $Q_5 = 35.0$ cfs, $Q_{100} = 56.5$ cfs).

Design Point 17 ($Q_5 = 9.5$ cfs, $Q_{100} = 25.3$ cfs) is the runoff from Basin Z, 0.76 acres of home lots, a portion of Mustang Rim Drive, and a portion of the roundabout of Issaquah Drive. This inlet also receives the runoff not collected by the at-grade inlets at Design Points 15 & 16. A proposed 12' D-10-R sump inlet will intercept this entire runoff prior to roundabout. A 24" HDPE storm lateral will convey the intercepted runoff to the main within Issaquah Drive (Pipe 20, 42" HDPE, $Q_5 = 56.2$ cfs, $Q_{100} = 112.8$ cfs). This main



continues south then turns to the west at the roundabout, proceeding down the collector roadway of Durango Kid Drive toward design points 21 & 22.

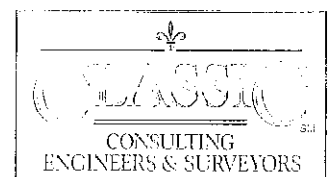
Design Point 18 ($Q_5 = 5.0$ cfs, $Q_{100} = 9.9$ cfs) is the runoff from Basin E, 1.67 acres of smaller sized home lots and the end cul-de-sac of Mustang Rim Drive. A proposed 4' D-10-R sump inlet will intercept all of this runoff and an 18" HDPE storm Pipe 23 will convey the runoff to the inlet at DP-19.

Design Point 19 ($Q_5 = 10.1$ cfs, $Q_{100} = 20.8$ cfs) is the runoff from Basin G, 4.62 acres of larger sized home lots and Mustang Rim Drive. A proposed 10' D-10-R sump inlet will intercept all of the stormwater at this location. The curb approaching this inlet adjacent to the home lots is a ramp curb and gutter at 2.5%, interpolated maximum City allowable 5-year flow is 17.8 cfs. Storm Pipe 24 (30" HDPE, $Q_5 = 14.4$ cfs, $Q_{100} = 29.3$ cfs) conveys the intercepted runoff by this inlet and the stormwater within Pipe 23 to the main within this portion of Mustang Rim Drive (north of the western roundabout).

Design Point 20 ($Q_5 = 6.6$ cfs, $Q_{100} = 13.4$ cfs) is the runoff from Basin F, 2.55 acres of larger sized home lots and Mustang Rim Drive. A proposed 6' D-10-R sump inlet will intercept all of the stormwater at this location. The curb approaching this inlet adjacent to is a ramp curb and gutter at 2.5%, interpolated maximum City allowable 5-year flow is 17.8 cfs. Storm Pipe 25 (30" HDPE, $Q_5 = 20.2$ cfs, $Q_{100} = 41.2$ cfs) combines the intercepted runoff by this inlet and that from Pipe 24 to a manhole located in the center of the Mustang Rim Drive roundabout. At this manhole, Pipes 25 and 22 converge and outfall to the west toward Sand Creek in a 48" HDPE storm Pipe 26 ($Q_5 = 73.7$ cfs, $Q_{100} = 148.1$ cfs).

Design Point 21 ($Q_5 = 3.2$ cfs, $Q_{100} = 6.3$ cfs) is the runoff from Basin I, 0.89 acres of the rear of 7 home lots and a portion of the collector roadway Durango Kid Drive and the Issaquah Drive roundabout. A proposed 4' D-10-R sump inlet will intercept all of this runoff and an 18" HDPE storm lateral will connect to the main within Durango Kid Drive, previously described as Pipe 20.

Design Point 22 ($Q_5 = 1.3$ cfs, $Q_{100} = 2.5$ cfs) is the runoff from Basin J, 0.29 acres of the collector roadway Durango Kid Drive and the Issaquah Drive roundabout. A proposed 4' D-10-R sump inlet will intercept all of this runoff and an 18" HDPE storm lateral will connect to the main within Durango Kid Drive (Pipe 21).

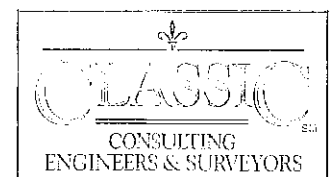


Pipe 21 is a 42" HDPE storm main containing the combined runoff ($Q_5 = 56.8$ cfs, $Q_{100} = 113.8$ cfs) from Design Points 21 & 22 with Pipe 20. This storm main continues west toward the Mustang Rim roundabout.

Design Point 23 ($Q_5 = 4.4$ cfs, $Q_{100} = 8.7$ cfs) is the runoff from Basin D, 1.22 acres of the rear of 8 home lots and a portion of the collector roadway Durango Kid Drive and the Mustang Rim Drive roundabout. A proposed 4' D-10-R sump inlet will intercept all of this runoff and an 18" HDPE storm lateral will connect to the main previously described as Pipe 21.

Design Point 24 ($Q_5 = 2.3$ cfs, $Q_{100} = 4.4$ cfs) is the runoff from Basin C, 0.51 acres of the collector roadway Durango Kid Drive and the Mustang Rim Drive roundabout. A proposed 4' D-10-R sump inlet will intercept all of this runoff and an 18" HDPE storm lateral will connect to the main within Durango Kid Drive (Pipe 22). Pipe 22 is a 42" HDPE storm main containing the combined runoff ($Q_5 = 55.1$ cfs, $Q_{100} = 110.3$ cfs) from Design Points 23 & 24 with Pipe 21. This storm main continues west to the storm manhole located in the center of the Mustang Rim Drive roundabout. At this manhole, Pipes 25 and 22 converge and outfall to the west toward Sand Creek in a 48" HDPE storm Pipe 26 ($Q_5 = 73.7$ cfs, $Q_{100} = 148.1$ cfs).

Design Point 25 ($Q_5 = 3.7$ cfs, $Q_{100} = 7.3$ cfs) is the runoff from Basin GG, 1.21 acres of larger home lots and the residential roadways of Silver Star Lane and Durango Kid Drive, including a portion of the Mustang Rim Drive roundabout. Dual proposed 4' D-10-R sump inlets (one on each side of the road) will intercept all of this runoff at this design point and 18" HDPE storm laterals will connect to the main within Durango Kid Drive (Pipe 27). Pipe 27 is a 48" HDPE storm main containing the combined runoff ($Q_5 = 71.7$ cfs, $Q_{100} = 143.9$ cfs) from all of the Central Storm System. The 48" HDPE main discharges directly into the Sand Creek Channel. Until such time that the Sand Creek Channel Improvements are installed an interim riprap splash pool is required at the outlet of this 48" pipe. This riprap plunge pool is to contain 3.0' depth below the invert of the pipe and a bottom pool length of 18' (width = 15') and an at-grade riprap apron length after the pool of 14'. D50 = 18" riprap is to be used with a rock depth of 3.0' and 2:1 side slopes into the plunge pool. The construction drawings for Filing 8 storm sewer will provide more details. As previously mentioned, the overall Sand Creek Channel contains approx. 2460 cfs including the 144 cfs from this 48" Pipe 27, and the channel has been improved to the southern property boundary (approx. 540' downstream of the Pipe 27 outfall). This portion of the existing channel is about 80' wide and has an overall slope to the boundary of 1.40%. In the 100-year event, this 540LF portion of existing channel



contains a water depth of only 2.9' and velocity of 7.9 ft/sec. These are sustainable values as proved by the adequate vegetation that currently exists at this outfall point. Downstream erosion will not occur and erosion at the point of pipe entry is protected with the interim riprap splash pool. Therefore, there are no downstream effects of this direct pipe release prior to the ultimate channel improvements. As previously mentioned, the proposed site is exempt from detention requirements and storm water quality for this system is not-warranted due to the proposed tributary land use being entirely of single family development.

SOUTHERN STORM SYSTEM:

The proposed and future development tributary to this 'Southern Storm System' has already been studied and planned for within the "Final Drainage Report for Indigo Ranch at Stetson Ridge Filing No. 3 & 4 and Master Development Drainage Plan Amendment for Stetson Ridge," by Classic Consulting Engineers & Surveyors, LLC, revised April 2005. This report and drainage design is in conformance with the previous drainage analysis. This report will confirm/discuss the changes and extensions of this southern storm system 'stubbed' into the proposed site with the existing infrastructure construction.

Design Point 26 ($Q_5 = 5.8$ cfs, $Q_{100} = 11.8$ cfs) is the runoff at this location of the ramp curb of Silver Star Lane from Basin DD, 2.45 acres of larger single family home lots and roadway. The runoff at this point is below the maximum allowed for the initial storm event per City criteria for a ramp curb at 1.7%, interpolated as $Q_5 = 14.7$ cfs. This stormwater continues south-east along Chickasaw Way to Mustang Rim Drive, Design Point 27. A city standard 6' cross pan carries these flows across Silver Star Lane.

Design Point 27 ($Q_5 = 10.8$ cfs, $Q_{100} = 21.8$ cfs) is the runoff at this location of the ramp curb of Chickasaw Way from Design Point 26 and Basin EE, 2.18 acres of larger single family home lots and roadway. The runoff at this point is below the maximum allowed for the initial storm event per City criteria for a ramp curb at 3.5%, interpolated as $Q_5 = 21.1$ cfs. Therefore, a storm sewer inlet is not needed at this location. This stormwater continues onto Mustang Rim Drive and continues within the concrete cross-pan to the south to Design Point 28.

Design Point 28 ($Q_5 = 16.5$ cfs, $Q_{100} = 33.4$ cfs) is the combined stormwater runoff on the surface of the roadway of Design Point 27, Basin FF, and Basin CC. Basin FF is 1.50 acres of the rear of three large single



family lots and a portion of the Collector roadway of Mustang Rim Drive. Mustang Rim Drive and Issaquah Drive are Collector roadways south of the proposed roundabouts, and Residential roadways to the north. Basin CC is 0.95 acres of larger proposed home lots and residential roadway Chickasaw Way. A proposed 20' D-10-R at-grade inlet intercepts a large portion of this runoff while the remaining continues south within Mustang Rim Drive to the sump inlet at Design Point 29. Pipe 28 (18" HDPE, $Q_5 = 10.8$ cfs, $Q_{100} = 17.6$ cfs) conveys the intercepted runoff to the south toward the existing storm system of Dublin Blvd. to the south.

Design Point 29 ($Q_5 = 8.6$ cfs, $Q_{100} = 21.4$ cfs) is the stormwater not collected by the at-grade inlet at DP-28 and that from Basin B, 1.29 acres of Mustang Rim Drive, larger single family home lots, and a portion of the proposed park. A proposed 12' D-10-R sump inlet will intercept the entire stormwater prior to flowing onto Dublin Blvd. Storm Pipe 29a (18" HDPE) will accept the developed runoff from Basin OS-FIRE ($Q_5 = 2.5$ cfs, $Q_{100} = 6.5$ cfs), the planned Colorado Springs Fire Department Station being designed and constructed by others. The tributary area and runoff quantities for Basin OS-FIRE are from the "Final Drainage Report for Colorado Springs Fire Station No. 21," by Atwood Associates Consulting Engineers, dated April 20, 2012. Pipe 29b (30" HDPE, $Q_5 = 10.8$ cfs, $Q_{100} = 27.2$ cfs) conveys the combined runoff from the fire station and this sump inlet to the storm manhole directly adjacent to the inlet. The runoff there combines with the runoff from Pipe 28 and 30a, described with DP-30.

Design Point 30 ($Q_5 = 5.9$ cfs, $Q_{100} = 12.1$ cfs) is the stormwater from Basin A, 2.18 acres of the collector roadway Mustang Rim Drive and adjacent tributary slope area to the east. A proposed 6' D-10-R sump inlet will intercept the entire stormwater prior to flowing onto Dublin Blvd. Storm Pipe 30a (18" HDPE) will convey this runoff to the aforementioned storm manhole between the two sump inlets. Pipe 30b (36" HDPE, $Q_5 = 25.5$ cfs, $Q_{100} = 52.9$ cfs) is the outfall pipe of this manhole that combines the runoff from Pipes 28, 29b, and 30a. The 36" outfall pipe continues south to the existing main within Dublin Blvd.

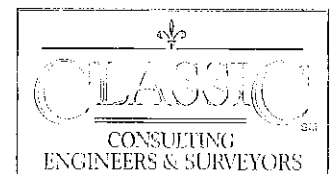
Design Point 31 ($Q_5 = 31.2$ cfs, $Q_{100} = 63.4$ cfs) is the developed runoff quantity with the future development of Basin MF into the planned 11.54 acre multi-family development. A separate final drainage report is required with the development of this basin that details the future storm system and exact runoff quantities. A 36" HDPE storm stub (Pipe 31a) is provided into the Basin at this design point for connection of the future storm system. A storm water quality facility is required for the future multi-family



development prior to release of the developed runoff into the provided storm stub. In the interim, a temporary sediment basin shall be constructed with temporary swales to direct all of the undeveloped runoff to an 8" standpipe and collection area. This temporary sediment basin shall be installed as required in the City of Colorado Springs Drainage Criteria Manual Volume 2.

The runoff rate in the undeveloped condition and tributary to the sediment basin is far less than the listed (fully developed) flow rate. Pipe 31a conveys the runoff from Basin MF to the west to the main within Mustang Rim Drive, Pipe 31b. Pipe 31b (42" HDPE, $Q_5 = 55.0$ cfs, $Q_{100} = 112.7$ cfs) contains the combined runoff from Pipe 30b and 31a and connects to the existing 42" storm stub constructed with the existing infrastructure to the south. As previously mentioned, this Southern Storm System was studied and established with the previous MDDP for Stetson Ridge. An additional "Master Development Drainage Plan Amendment for Stetson Ridge," by Classic Consulting Engineers & Surveyors, LLC dated 12-08-08, was completed to account for the addition of the CSFD Fire Station and additional single family area per the latest Master Plan revision. Per the 12-08-08 Amendment Letter, the flow within the 42" storm pipe (Stetson Ridge MDDP Pipe 50) should be $Q_5 = 48$ cfs and $Q_{100} = 98$ cfs. The slight additional runoff quantity calculated with this report is due to the final subdivision grading and layout creating more tributary area to the inlets and this 42" storm. The area of the future multi-family site was increased slightly with this study to more conservatively estimate the future developed runoff. Also, the time of concentration for the tributary area is more precisely defined with this report and is slightly less than that of the previous MDDP, thus creating a higher runoff rate. This increased flow rate to the existing 42" storm pipe into the site only increases the outfall rate of the overall storm system into Sand Creek by 5 cfs in the 100-year condition. This increase within the 84" outfall to 565 cfs does not cause hydraulic issues to any of the existing downstream system and the hydraulic grade line maintains an elevation below the finished street grade above the storm.

Design Point 32 ($Q_5 = 30.7$ cfs, $Q_{100} = 54.6$ cfs) is the developed runoff quantity with the future development of Basin CM-1 into the planned 6.92 acre commercial development. A separate final drainage report is required with the development of this basin that details the future storm system and exact runoff quantities. A storm water quality facility is required for the future commercial development prior to release of the developed runoff into the provided storm stub. A 30" HDPE storm stub (Pipe 32) is provided into the Basin at this design point for connection of the future storm system. This Pipe 32 is an extension of the

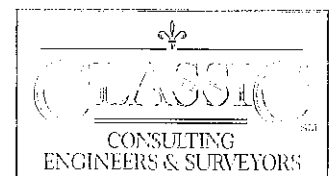


existing 30" RCP stub from Dublin Blvd. and the existing system designed by the M.D.D.P. Amendment for Stetson Ridge. Per the Stetson Ridge MDDP, this 30" RCP (Pipe 46) can accept $Q_5 = 31$ cfs and $Q_{100} = 55$ cfs. Therefore development of this basin as commercial land use will not adversely affect the downstream storm sewer system. Prior to development of Basin CM-1, a temporary sediment basin with swales shall be constructed at this design point to collect and treat using an 8" perforated standpipe, the undeveloped runoff prior to release into the existing downstream system.

Design Point 33 ($Q_5 = 6.0$ cfs, $Q_{100} = 11.7$ cfs) is the runoff from Basin K, 1.74 acres of Issaquah Drive, including the roundabout, and the surrounding slope and landscape areas. The runoff from this basin drains directly south to the low point of Issaquah Drive, north of Dublin Blvd. Dual proposed 4' D-10-R sump inlets (one on each side of the road) will intercept all of this runoff at this design point. An outfall Pipe 33 (24" HDPE, $Q_5 = 6.0$ cfs, $Q_{100} = 11.7$ cfs) conveys the intercepted runoff to the existing storm stub (Pipe 35) from Dublin Blvd. into the proposed site/Issaquah Drive.

Design Point 34 ($Q_5 = 21.3$ cfs, $Q_{100} = 37.9$ cfs) is the developed runoff quantity with the future development of Basin CM-2 into the planned 5.79 acre commercial development. A separate final drainage report is required with the development of this basin that details the future storm system and exact runoff quantities. A storm water quality facility is required for the future commercial development prior to release of the developed runoff into the provided storm stub. A 36" HDPE storm stub (Pipe 34) is provided into the Basin at this design point for connection of the future storm system. Pipe 34 will convey the developed runoff to the main (Pipe 35) within Issaquah Drive from DP-33. Pipe 35 (36" HDPE, $Q_5 = 26.1$ cfs, $Q_{100} = 47.2$ cfs) connects to the existing 36" RCP storm stub constructed with the infrastructure to the south. Per the Stetson Ridge MDDP, this 36" RCP (Pipe 45) can accept $Q_5 = 25$ cfs and $Q_{100} = 44$ cfs. The slight increase in the runoff rates at this pipe connection calculated with this report are minor enough to not cause any concern of downstream issues to the existing system. Prior to development of Basin CM-2, a temporary sediment basin with swales shall be constructed at this design point to collect and treat, using an 8" perforated standpipe, the undeveloped runoff prior to release into the existing downstream system.

Design Point 35 ($Q_5 = 18.8$ cfs, $Q_{100} = 33.4$ cfs) is the developed runoff quantity with the future development of Basin CM-3 into the planned 4.23 acre commercial development. A separate final drainage report is required with the development of this basin that details the future storm system and exact runoff



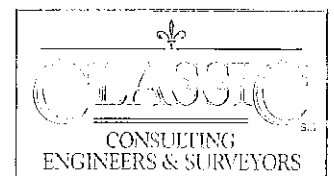
quantities. A storm water quality facility is required for the future commercial development prior to release of the developed runoff into the provided storm stub. An existing 24" RCP storm stub (Pipe 36) has been provided into this Basin from the existing infrastructure to the south, associated with Dublin Blvd. This storm pipe was not specifically defined with the original or Amendment Stetson Ridge MDDP, but was incorporated with the design of Dublin Blvd in order to pick up the developed runoff from Stetson Ridge MDDP Basin OS-3A. The runoff from this Basin CM-3 is routed within the existing and future storm system to the south, across Dublin Blvd. A future detention/storm water quality facility is required to be constructed with the commercial parcel immediately south of Dublin Blvd and west of Marksheffel Rd. per previous drainage studies. This future facility will detain the tributary runoff, including Basin CM-3, to allowable release rates to the downstream Marsheffel Road crossing, shown on the Amendment Stetson Ridge MDDP as Design Point 58 & Pipe 79. The assumed developed runoff from this basin within the Amendment Stetson Ridge MDDP was $Q_5 = 15$ cfs and $Q_{100} = 28$ cfs. The slight increase of runoff quantified with this report does not hinder the existing storm sewer within Dublin Blvd. and will be accounted for in the detention pond sizing of the commercial parcel to the south.

DIRECT RELEASE INTO SAND CREEK CHANNEL:

The following design points and basins represent locations directly adjacent and tributary to Sand Creek Channel.

Design Point 36 ($Q_5 = 4.9$ cfs, $Q_{100} = 11.7$ cfs) is the runoff from Basins MM and TT. Basin MM, 3.01 acres, is the future City of Colorado Springs Community Park including a portion of the proposed single family home lots within Indigo Ranch North at Stetson Ridge Filing No. 8. Per the "Final Drainage Report for Colorado Springs Fire Station No. 21" a diversion berm is to be installed along the northern boundary of Basin OS-FIRE to route the runoff from the Community Park west, to the private entrance road for the fire station. With the development of the Park, consideration should be made to route this runoff directly west into the channel and alleviate the runoff down the private entrance road.

Design Point 37 ($Q_5 = 3.7$ cfs, $Q_{100} = 8.7$ cfs) is the runoff from Basins OS-2 and NN. Basin OS-2 is 1.05 acres of undeveloped, off-site land, whereas Basin NN is 1.27 acres of undeveloped open space and the rear of three larger single family home lots. This runoff drains west and south along the existing sanitary sewer



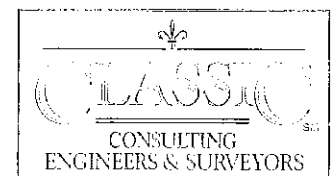
access road to an existing storm sewer crossing of this dirt access road. Storm crossing facilities were installed by others as a part of the Colorado Springs Utilities Sanitary Trunking project. With significant upstream area being diverted with proposed streets and storm systems, the total area tributary is only rear yards and areas in the immediate area of the crossings. The runoff to this existing pipe is less in the developed condition than in the historic. The stormwater continues west into the existing Sand Creek Channel floodplain.

Design Point 38 ($Q_5 = 3.6$ cfs, $Q_{100} = 8.1$ cfs) is the runoff from Basin PP, 2.11 acres of open space and the rear of larger single family home lots. This runoff drains west and south along the existing sanitary sewer access road to an existing storm sewer crossing of this dirt access road. The runoff to this existing pipe is less in the developed condition than in the historic. The stormwater continues west into the improved Sand Creek Channel.

Design Point 39 ($Q_5 = 6.3$ cfs, $Q_{100} = 14.2$ cfs) is the runoff from Basin RR, 3.75 acres of open space/slope area and the rear of larger single family home lots. This runoff drains west and south along the existing sanitary sewer access road to an existing storm sewer crossing of this dirt access road. The runoff to this existing pipe is less in the developed condition than in the historic. The stormwater continues west into the improved Sand Creek Channel.

Design Point 40 ($Q_5 = 6.0$ cfs, $Q_{100} = 14.3$ cfs) is the runoff from Basins SS and OS-1. Basin SS is 2.62 acres of open space/slope area and the rear of larger single family home lots. Basin OS-1 is undeveloped, off-site land to the northeast of the proposed MDDP boundary. This area drains to an existing swale that is continued with the proposed grading to its existing outfall path, an existing storm sewer crossing of the sanitary access road at this design point. This runoff drains west then north and south along the existing sanitary sewer access road to the existing storm sewer. The runoff to this existing pipe is less in the developed condition than in the historic. The stormwater continues west into the improved Sand Creek Channel.

Basin QQ ($Q_5 = 18.3$ cfs, $Q_{100} = 43.8$ cfs) is the remainder of the MDDP study area/site boundary along the western Sand Creek Channel corridor. This 14.95 acre basin is mostly channel area and adjacent open space with a small portion of proposed larger single family home lots that drain directly west, over the



existing sanitary sewer access road and into the channel. No other portion of Basin QQ is planned to be developed, however if such was to change, a future drainage report is require at that time specifying any changes to this report and its design.

SAND CREEK CHANNEL IMPROVEMENTS

As previously mentioned, Reach SC-7 per the D.B.P.S. runs through the proposed site along the western boundary. Per the D.B.P.S. "Reaches SC-7 and SC-8: A selective improvement concept involving the localized lining of channel banks and grade control construction has been recommended for these reaches. The feasibility of this concept stems from the fact that ultimate upstream flows will be reduced because of off-site detention. Numerous individual County ownerships cross the drainageway, however no habitable structures lie within the 100-year floodplain. Because of this, the economic feasibility of the channelization concepts is high. Non-structural measures can be used to limit encroachments into flood-prone areas. Additionally, the City of Colorado Springs Comprehensive plan recommends that the floodplains be maintained as open space. Potential habitat disturbances can be avoided with a selective plan, or simply replaced as part of the particular construction activity which caused the disturbance." Per the 'Preliminary Design Plan' within the D.B.P.S. for Sand Creek, along the proposed site, there are a total of 10-11 grade check structures required, along with selective riprap protection in order to convey the restricted developed runoff through the site.

With the preliminary design for the Sand Creek Channel improvements for the proposed Indigo Ranch North at Stetson Ridge site as shown on the Development Plan sheets and Drainage Maps, a total of seven (7) concrete/riprap sloping drop structures are necessary with a channel slope between the drops proposed for 0.40%. This will limit the velocity to non-erosive levels for a 50' wide naturally vegetated channel bottom, assuming a $Q_{100} = 2460$ cfs as reported in the DBPS, Riprap protection will be installed as deemed necessary with the HEC-RAS and FEMA Floodplain analysis. A CLOMR is being completed that accurately defines the existing 100-yr floodplain and defines the proposed 100-yr floodplain. A LOMR is required after construction of the channel improvements that formally changes the Effective 100-year floodplain. A separate Final Drainage/Design Report, along with Construction Drawings, is required to be reviewed and approved by the City of Colorado Springs. This full analysis channel design/report is to be submitted to the City prior to building permits being issued for Indigo Ranch North at Stetson Ridge Filing



No. 10. Until such ultimate channel improvements, adequate erosion protection will be installed at the outfall of the Central System (phase 1 development) which will prohibit erosion of the existing native channel corridor to the previously improved channel at the site boundary.

The largest concern/issue associated with the Sand Creek Channel improvements through the site is with the multiple ownership parcels along this corridor that the improvements will affect. Coordination with these owners will be essential to granting easements to the City of Colorado Springs for maintenance and ownership of the improved channel. In order to allow development of Filings 8, 9, & 10, assurances will be posted for the channel improvements prior to any building permits being issued in order to allow development as Sand Creek permitting to take place.

EROSION CONTROL PLAN

The City of Colorado Springs Drainage Criteria Manual specifies an Erosion Control Plan and associated cost estimate be submitted with the Final Drainage Report. We respectfully request that the Erosion Control Plan and cost estimate be submitted in conjunction with the Grading Plan and construction assurances posted prior to obtaining a grading permit. Adequate erosion control measures including the specified temporary sediment basins for those parcels to be overlot graded now, but not developed until a future time, shall be installed to prevent sediment build up within the storm sewer facilities.

DRAINAGE CRITERIA

Hydrologic calculations were performed using the City of Colorado Springs/El Paso County Drainage Criteria Manual, as revised in November 1991 and October 1994. Temporary sediment basins and erosion control BMPs shall be implemented as needed per the City of Colorado Springs/El Paso County Drainage Criteria Manual, Volume 2. The Rational Method was used to estimate stormwater runoff from design storms for the 5 year and 100 year recurrence intervals. This provides conservative sizing of the proposed and future storm sewer systems, as no more than approximately 5 acres of developed runoff reaches any one storm inlet. Overall hydraulic analysis (SCS analysis) of the entire Sand Creek Basin to the channel within the site was not completed as the D.B.P.S. provides an accurate model for the entire Sand Creek



channel in both the existing and ultimate developed conditions. Street capacity criteria are maintained for initial and major storm events.

FLOODPLAIN STATEMENT

Effective 100-year floodplain limits are defined for the aforementioned Sand Creek Channel along the western boundary of the site as determined by the Flood Insurance Rate Maps (F.I.R.M.) Map Numbers 08041C 0537F and 08041C 0545F effective date, March 17, 1997 (See Exhibit in Appendix). No portion of any proposed single family lot is impacted by an existing FEMA Floodplain.

DRAINAGE AND BRIDGE FEES

This area lies within the Sand Creek Drainage Basin. Drainage fees are not required for areas not being platted at this time. With this report, Indigo Ranch North at Stetson Ridge Filing No. 8, 9, & 10 are proposed to be platted and therefore the year 2012 fees are due as follows:

FILING NO. 8 (26.085 Acres)

Drainage Fee

\$9,632/acre x 26.085 acres \$ 251,250.72

Bridge Fee

\$596/acre x 26.085 acres \$ 15,546.66

Pond Land Fee

\$1,070/acre x 26.085 acres \$ 27,910.95

Pond Facility Fee

\$2,881/acre x 26.085 acres \$ 75,150.89

Sand Creek Detention Pond #2 Surcharge Fee

\$1,045/acre x 26.085 acres \$ 27,258.83

FILING 8 TOTAL \$ 397,118.05



FILING NO. 9 (12.464 Acres)

Drainage Fee

\$9,632/acre x 12.464 acres \$ 120,053.25

Bridge Fee

\$596/acre x 12.464 acres \$ 7,428.54

Pond Land Fee

\$1,070/acre x 12.464 acres \$ 13,336.48

Pond Facility Fee

\$2,881/acre x 12.464 acres \$ 35,908.78

Sand Creek Detention Pond #2 Surcharge Fee

\$1,045/acre x 12.464 acres \$ 13,024.88

FILING 9 TOTAL \$ 189,751.94

FILING NO. 10 (10.929 Acres)

Drainage Fee

\$9,632/acre x 10.929 acres \$ 105,268.13

Bridge Fee

\$596/acre x 10.929 acres \$ 6,513.68

Pond Land Fee

\$1,070/acre x 10.929 acres \$ 11,694.03

Pond Facility Fee

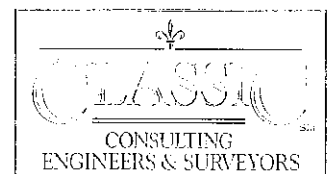
\$2,881/acre x 10.929 acres \$ 31,486.45

Sand Creek Detention Pond #2 Surcharge Fee

\$1,045/acre x 10.929 acres \$ 11,420.81

FILING 10 TOTAL \$ 166,383.10

Bridge, Pond Land, Pond Facility, and Sand Creek Detention Pond #2 Surcharge Fees will be paid in conjunction with Final Plat recordation. Portions of the Drainage Fees will be offset by Sand Creek Channel improvement costs and reimbursable storm sewer facilities identified in this report.



CONSTRUCTION COST OPINION

FILING NO. 8

Public Drainage Facilities (Reimbursable) FILING NO. 8

Per the Sand Creek D.B.P.S. and the M.D.D.P. Amendment for Stetson Ridge to the south, all storm sewer facilities 48" and larger and storm manholes associated with the 48" and larger mains are considered reimbursable facilities. The majority of the public storm system for all Filings 8 , 9, & 10 are under 48" in size, however below are the Public Facilities that are reimbursable:

1.	Type 1 Storm Manhole	1 EACH	\$8,000/EA	\$ 8,000.00
2.	48" Storm HDPE	570 LF	\$118/LF	\$ 67,260.00
SUB-TOTAL				\$ 75,260.00
15% ENGINEERING & CONTINGENCIES				\$ 11,289.00
TOTAL				\$ 86,549.00

Public Drainage Facilities (Non-Reimbursable) FILING NO. 8

3.	4' D-10-R Inlet	2 EACH	\$4,000/EA	\$ 8,000.00
4.	6' D-10-R Inlet	2 EACH	\$4,500/EA	\$ 9,000.00
5.	10' D-10-R Inlet	1 EACH	\$5,500/EA	\$ 5,500.00
6.	12' D-10-R Inlet	1 EACH	\$6,000/EA	\$ 6,000.00
7.	20' D-10-R Inlet	1 EACH	\$8,300/EA	\$ 8,300.00
8.	Type 1 Storm Manhole	1 EACH	\$8,000/EA	\$ 8,000.00
9.	18" Storm HDPE	610 LF	\$31/LF	\$ 18,910.00
10.	30" Storm HDPE	240 LF	\$64/LF	\$ 15,360.00
11.	36" Storm HDPE	60 LF	\$79/LF	\$ 4,740.00
12.	42" Storm RCP	135 LF	\$95/LF	\$ 12,825.00
SUB-TOTAL				\$ 96,635.00
15% ENGINEERING & CONTINGENCIES				\$ 14,495.25
TOTAL				\$ 111,130.25

Private Drainage Facilities (Non-Reimbursable) FILING NO. 8

13.	36" Storm HDPE	170 LF	\$79/LF	\$ 13,430.00
SUB-TOTAL				\$ 13,430.00
15% ENGINEERING & CONTINGENCIES				\$ 2,014.50
TOTAL				\$ 15,444.50



Classic Consulting Engineers & Surveyors cannot and does not guarantee that the construction cost will not vary from these opinions of probable construction costs. These opinions represent our best judgment as design professionals familiar with the construction industry and this development in particular.

FILING NO. 9

Public Drainage Facilities (Non-Reimbursable) FILING NO. 9

14.	4' D-10-R Inlet	5 EACH	\$4,000/EA	\$ 20,000.00
15.	6' D-10-R Inlet	2 EACH	\$4,500/EA	\$ 9,000.00
16.	8' D-10-R Inlet	1 EACH	\$5,000/EA	\$ 5,000.00
17.	12' D-10-R Inlet	1 EACH	\$6,000/EA	\$ 6,000.00
18.	14' D-10-R Inlet	3 EACH	\$6,500/EA	\$ 19,500.00
19.	18' D-10-R Inlet	1 EACH	\$7,800/EA	\$ 7,800.00
20.	Type 1 Storm Manhole	3 EACH	\$8,000/EA	\$ 24,000.00
21.	18" Storm HDPE	390 LF	\$31/LF	\$ 12,090.00
22.	24" Storm HDPE	240 LF	\$46/LF	\$ 11,040.00
23.	30" Storm HDPE	50 LF	\$64/LF	\$ 3,200.00
24.	36" Storm HDPE	95 LF	\$79/LF	\$ 7,505.00
25.	42" Storm HDPE	970 LF	\$95/LF	\$ 92,150.00

SUB-TOTAL				\$ 217,285.00
15% ENGINEERING & CONTINGENCIES				\$ 32,592.75
TOTAL				\$ 249,877.75

Private Drainage Facilities (Non-Reimbursable) FILING NO. 9

26.	30" Storm HDPE	40 LF	\$64/LF	\$ 2,560.00
27.	36" Storm HDPE	95 LF	\$79/LF	\$ 7,505.00

SUB-TOTAL				\$ 10,065.00
15% ENGINEERING & CONTINGENCIES				\$ 1,509.75
TOTAL				\$ 11,574.75

Classic Consulting Engineers & Surveyors cannot and does not guarantee that the construction cost will not vary from these opinions of probable construction costs. These opinions represent our best judgment as design professionals familiar with the construction industry and this development in particular.



FILING NO. 10

Public Drainage Facilities (Non-Reimbursable) FILING NO. 10

28.	20' D-10-R Inlet	1 EACH	\$8,300/EA	\$ 8,300.00
29.	24" Storm HDPE	50 LF	\$46/LF	\$ 2,300.00
SUB-TOTAL				\$ 10,600.00
15% ENGINEERING & CONTINGENCIES				\$ 1,590.00
TOTAL				\$ <u>12,190.00</u>

Classic Consulting Engineers & Surveyors cannot and does not guarantee that the construction cost will not vary from these opinions of probable construction costs. These opinions represent our best judgment as design professionals familiar with the construction industry and this development in particular.

SAND CREEK CHANNEL IMPROVEMENTS (FILING 8, 9, 10)

30.	Chnl Side Slope Stabilization	1000 LF	\$300/LF	\$300,000.00
31.	Sloping Drop Structure	1/EA	\$100,000/EA	\$100,000.00
32.	N'ly transition to existing	2/EA	\$20,000/EA	\$ 40,000.00
SUB-TOTAL				\$ 440,000.0
15% ENGINEERING & CONTINGENCIES				\$ <u>66,000.00</u>
TOTAL				\$ <u>506,000.00</u>

Prior to any building permit being issued in Filing 8, 9, or 10, assurances will be posted for the portion of Sand Creek improvements associated with those filings.

Classic Consulting Engineers & Surveyors cannot and does not guarantee that the construction cost will not vary from these opinions of probable construction costs. These opinions represent our best judgment as design professionals familiar with the construction industry and this development in particular.



SUMMARY

The proposed overall Indigo Ranch North at Stetson Ridge development is to drain to multiple storm sewer inlets and pipes described within this report that all outfall into the Sand Creek Channel to the west. Per the Sand Creek D.B.P.S., on-site detention of the developed runoff is not required as regional detention facilities have been established throughout the basin, along the channel. Storm water quality facilities are required for the multi-family and commercial parcels, but not for the single-family residential development. Channel improvements for Sand Creek adjacent to the proposed site will be completed in conformance with the D.B.P.S. and FEMA Floodplain requirements. A separate Final Drainage/Design Report, along with Construction Drawings, is required to be reviewed and approved by the City of Colorado Springs. This full analysis channel design/report is to be submitted to the City prior to building permits being issued for Indigo Ranch North at Stetson Ridge Filing No. 10.

This report is also the Final Drainage Report for Indigo Ranch North at Stetson Ridge Filings No. 8, 9, & 10 (shown on the drainage map). As such, the currently proposed storm system as been designated throughout the report while notating all other storm facilities as 'future'. Storm stubs will be provided outside of the current development area for the connection of the future developments. Separate Final Drainage Reports/Letters are required with any future platting within the M.D.D.P. study area.

All drainage facilities were sized using the current City of Colorado Springs Drainage Criteria and will safely discharge storm water runoff to adequate downstream facilities. There are no adjacent developments adversely affected by the development of the proposed site.

PREPARED BY:

Classic Consulting Engineers & Surveyors, LLC



Matthew Larson
Project Engineer

ag/1115.00/Reports/1115.00 MDDP-FDR.doc



REFERENCES

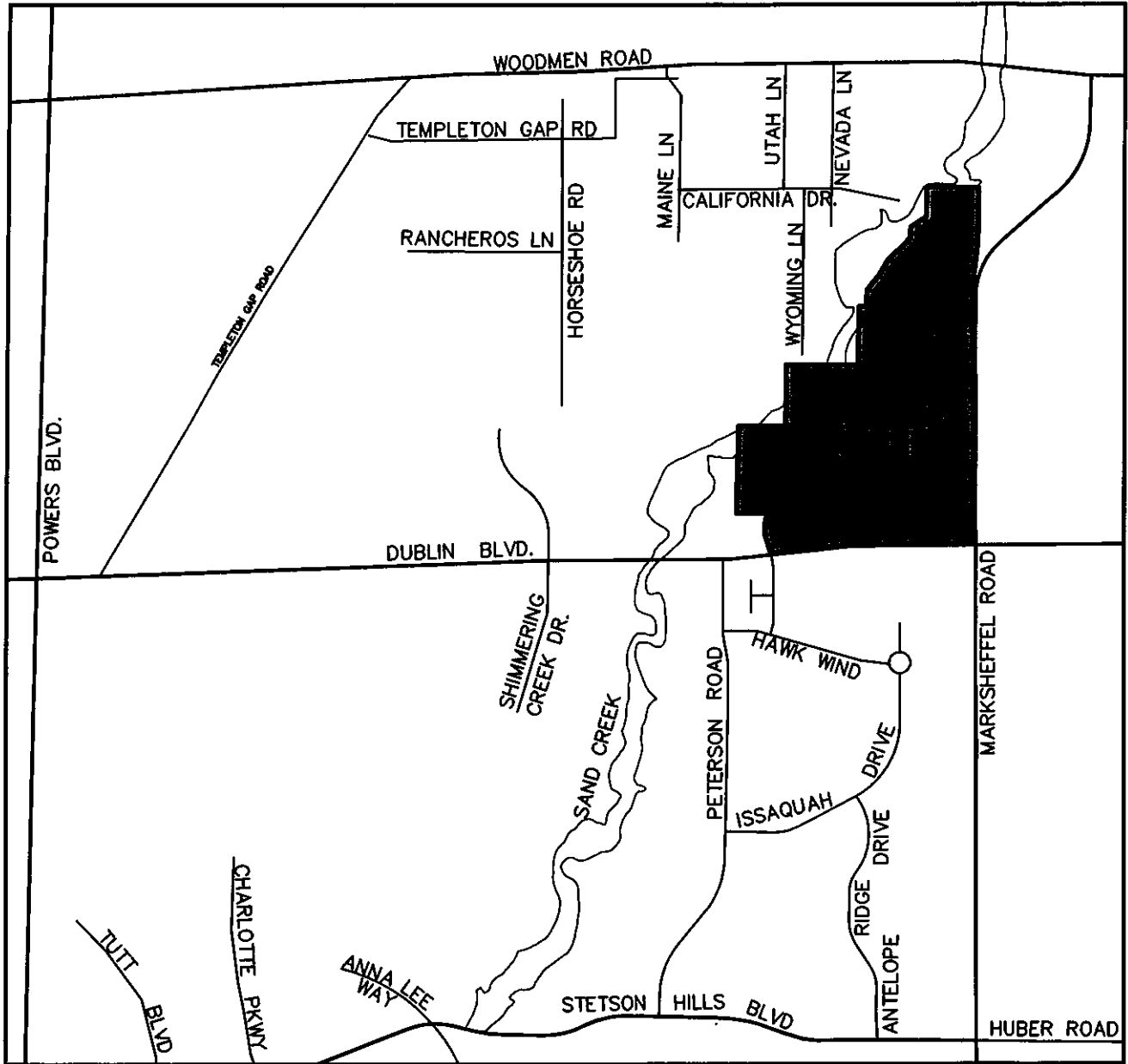
1. City of Colorado Springs/County of El Paso Drainage Criteria Manual dated October 1991.
2. City of Colorado Springs/County of El Paso Drainage Criteria Manual Vol. 2 dated November 2002.
3. "Sand Creek Drainage Basin Planning Study Preliminary Design Report," by Kiowa Engineering Corporation, last revised March 1996.
4. "Final Drainage Report for Indigo Ranch at Stetson Ridge Filing No. 3 & 4, and Master Development Drainage Plan Amendment for Stetson Ridge," by Classic Consulting Engineers & Surveyors, LLC, revised April 2005.
5. "Master Development Drainage Plan Amendment for Stetson Ridge," (Drainage Letter) by Classic Consulting Engineers & Surveyors, LLC, dated December 8, 2008.
6. "Final Drainage Report for Colorado Springs Fire Station No. 21 (Lot 1, Colorado Springs Department No. 21 Dublin Blvd. and Peterson Rd. Colorado Springs, CO)," by Atwood Associates, Final April 20, 2012.
7. "Preliminary/Final Drainage Report for Peterson Road at Indigo Ranch Filing No. 1," by Classic Consulting Engineers & Surveyors, LLC, revised November 2006.



APPENDIX

VICINITY MAP





VICINITY MAP
NOT TO SCALE

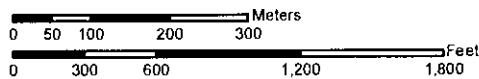
SOILS MAP (S.C.S SURVEY)



Soil Map—El Paso County Area, Colorado
(Indigo North of Dublin)



Map Scale: 1:8,880 if printed on A size (8.5" x 11") sheet.



Soil Map—El Paso County Area, Colorado
(Indigo North of Dublin)

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Units

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

- Gully
- Short Steep Slope
- Other

Political Features

Cities

Water Features

Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:8,880 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: UTM Zone 13N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 8, Apr 6, 2011

Date(s) aerial images were photographed: 7/30/2005

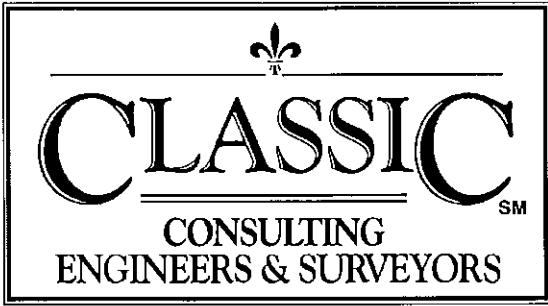
The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

El Paso County Area, Colorado (CO625)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
8	Blakeland loamy sand, 1 to 9 percent slopes	185.3	44.6%
9	Blakeland-Fluvaquentic Haplaquolls	152.6	36.7%
10	Blendon sandy loam, 0 to 3 percent slopes	30.5	7.3%
97	Truckton sandy loam, 3 to 9 percent slopes	47.4	11.4%
Totals for Area of Interest		415.7	100.0%

F.E.M.A. MAP

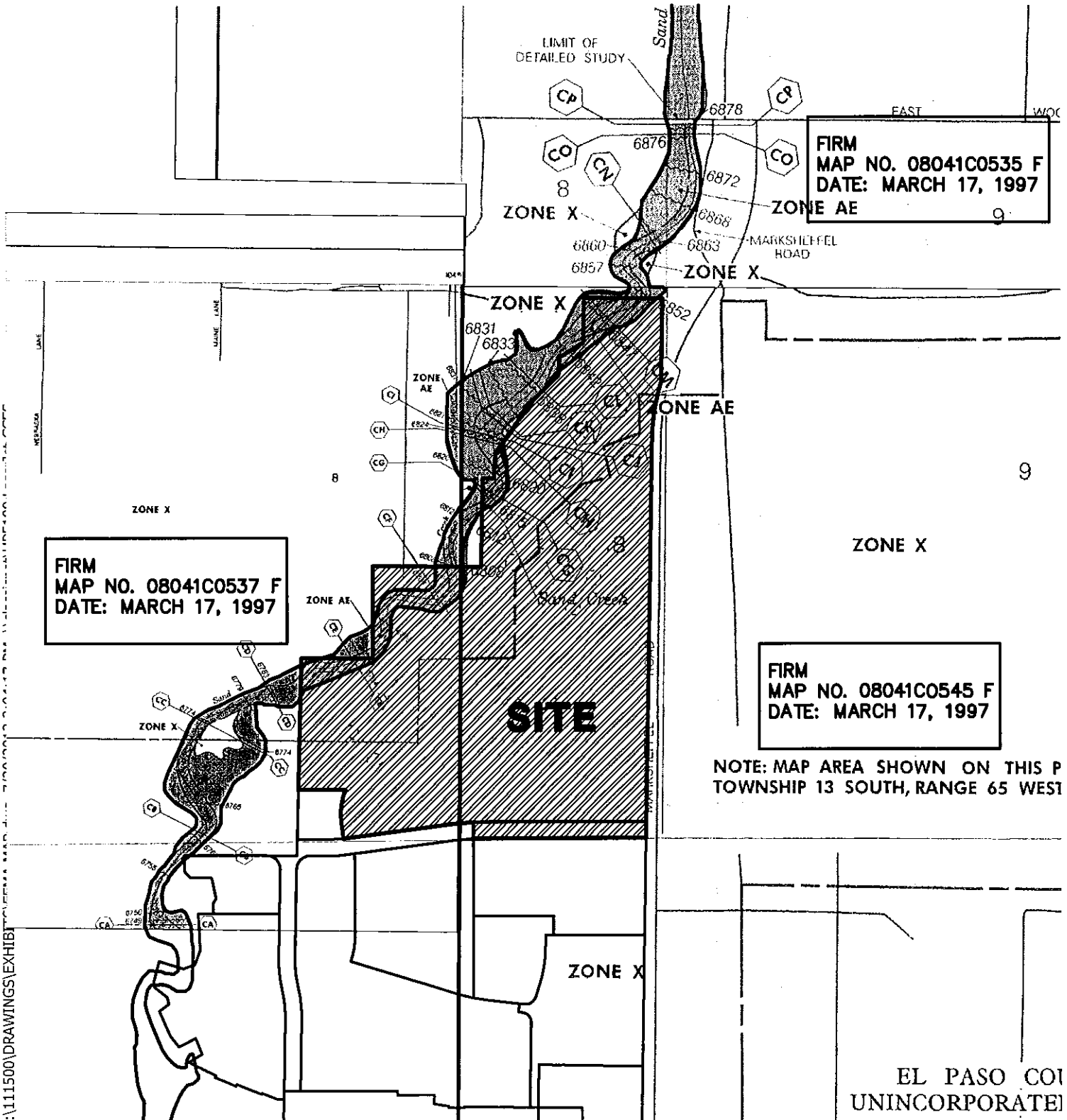




INDIGO RANCH NORTH AT STETSON RIDGE
FEMA FLOODPLAIN EXHIBIT

JOB NO. 1115.00
JULY 2012

6385 Corporate Drive, Suite 101 (719)785-0790
Colorado Springs, Colorado 80919 (719)785-0799 (Fax)



FIRM
MAP NO. 08041C0535 F
DATE: MARCH 17, 1997

FIRM
MAP NO. 08041C0537 F
DATE: MARCH 17, 1997

FIRM
MAP NO. 08041C0545 F
DATE: MARCH 17, 1997

NOTE: MAP AREA SHOWN ON THIS P
TOWNSHIP 13 SOUTH, RANGE 65 WEST

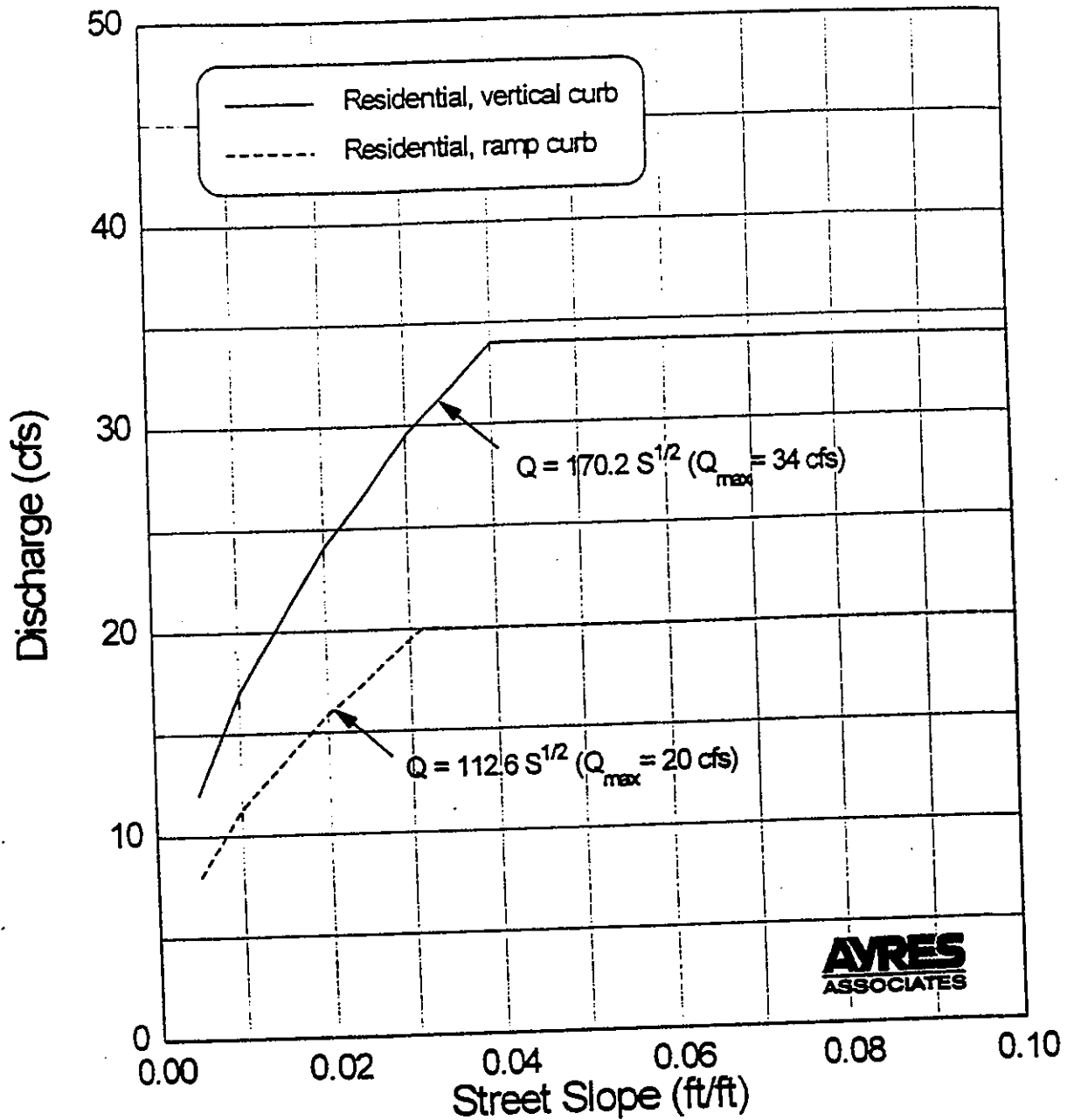
EL PASO COI
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X:\111500\DRAWINGS\EXHIBIT\111500-01-FLOODPLAIN EXHIBIT.DWG

HYDROLOGIC CALCULATIONS



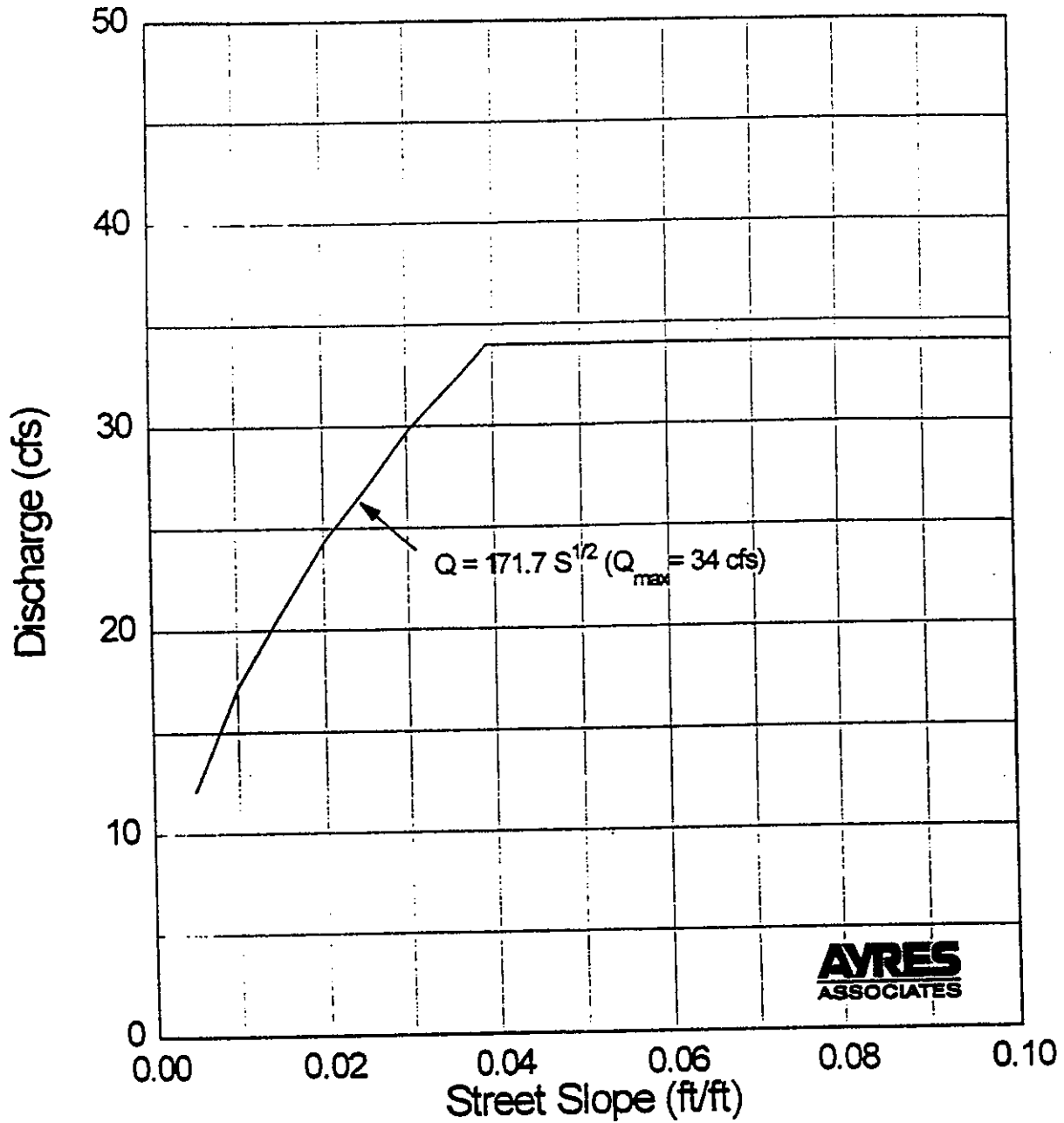
RESIDENTIAL STREET (34' Flowline to flowline)



Interim Release October 12, 1994
City of Colorado Springs

Use this graph to determine the allowable street capacity per side, initial storm, for the typical street section using a 2% crown.

COLLECTOR STREETS (Major and Minor)



Interim Release October 12, 1994
City of Colorado Springs

Use this graph to determine the allowable street capacity per side, initial storm, for the typical street section using a 2% crown. No flow may cross the crown.

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

FINAL DRAINAGE REPORT ~ BASIN RUNOFF COEFFICIENT SUMMARY

BASIN	TOTAL AREA (AC)	IMPERVIOUS AREA / STREETS			LANDSCAPE/UNDEVELOPED AREAS			WEIGHTED		WEIGHTED CA	
		AREA (AC)	C(5)	C(100)	AREA (AC)	C(5)	C(100)	C(5)	C(100)	CA(5)	CA(100)
A	2.18	0.95	0.90	0.95	1.23	0.25	0.35	0.53	0.61	1.16	1.33
B	1.29	0.46	0.90	0.95	0.83	0.50	0.6	0.64	0.72	0.83	0.94
C	0.51	0.51	0.90	0.95	0.00	0.25	0.35	0.90	0.95	0.46	0.48
D	1.22	0.43	0.90	0.95	0.79	0.60	0.7	0.71	0.79	0.86	0.96
E	1.67	0.52	0.90	0.95	1.15	0.60	0.7	0.69	0.78	1.16	1.30
F	2.55	0.76	0.90	0.95	1.79	0.50	0.6	0.62	0.70	1.58	1.80
G	4.62	0.66	0.90	0.95	3.96	0.54	0.64	0.59	0.68	2.73	3.16
H	3.73	1.24	0.90	0.95	2.49	0.60	0.7	0.70	0.78	2.61	2.92
I	0.89	0.30	0.90	0.95	0.59	0.60	0.7	0.70	0.78	0.62	0.70
J	0.29	0.29	0.90	0.95	0.00	0.25	0.35	0.90	0.95	0.26	0.28
K	1.74	1.13	0.90	0.95	0.61	0.25	0.35	0.67	0.74	1.17	1.29
L	3.07	0.69	0.90	0.95	2.38	0.60	0.7	0.67	0.76	2.05	2.32
M	4.19	1.26	0.90	0.95	2.93	0.60	0.7	0.69	0.78	2.89	3.25
N	3.15	0.59	0.90	0.95	2.56	0.50	0.6	0.57	0.67	1.81	2.10
P	3.85	0.56	0.90	0.95	3.29	0.53	0.63	0.58	0.68	2.25	2.60
Q	1.33	0.43	0.90	0.95	0.90	0.60	0.7	0.70	0.78	0.93	1.04
R	2.96	0.42	0.90	0.95	2.54	0.60	0.70	0.64	0.74	1.90	2.18
S	1.47	0.60	0.90	0.95	0.87	0.60	0.7	0.72	0.80	1.06	1.18
T	3.27	0.53	0.90	0.95	2.74	0.53	0.63	0.59	0.68	1.93	2.23
U	2.34	0.29	0.90	0.95	2.05	0.45	0.55	0.51	0.60	1.18	1.40
V	2.95	0.42	0.90	0.95	2.53	0.60	0.7	0.64	0.74	1.90	2.17
W	4.62	1.00	0.90	0.95	3.62	0.60	0.7	0.66	0.75	3.07	3.48
X	3.27	0.78	0.90	0.95	2.49	0.60	0.7	0.67	0.76	2.20	2.48
Y	1.65	0.52	0.90	0.95	1.13	0.60	0.7	0.69	0.78	1.15	1.29
Z	0.76	0.32	0.90	0.95	0.44	0.60	0.7	0.73	0.81	0.55	0.61

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

FINAL DRAINAGE REPORT ~ BASIN RUNOFF COEFFICIENT SUMMARY

BASIN	TOTAL AREA (AC)	IMPERVIOUS AREA / STREETS			LANDSCAPE/UNDEVELOPED AREAS			WEIGHTED		WEIGHTED CA	
		AREA (AC)	C(5)	C(100)	AREA (AC)	C(5)	C(100)	C(5)	C(100)	CA(5)	CA(100)
AA	0.74	0.25	0.90	0.95	0.49	0.60	0.7	0.70	0.78	0.52	0.58
BB	1.66	0.23	0.90	0.95	1.43	0.60	0.7	0.64	0.73	1.07	1.22
CC	0.95	0.34	0.90	0.95	0.61	0.50	0.6	0.64	0.73	0.61	0.69
DD	2.45	0.74	0.90	0.95	1.71	0.50	0.6	0.62	0.71	1.52	1.73
EE	2.18	0.65	0.90	0.95	1.53	0.50	0.6	0.62	0.70	1.35	1.54
FF	1.50	0.44	0.90	0.95	1.06	0.50	0.6	0.62	0.70	0.93	1.05
GG	1.21	0.54	0.90	0.95	0.67	0.50	0.6	0.68	0.76	0.82	0.92
HH	1.92	0.73	0.90	0.95	1.19	0.50	0.6	0.65	0.73	1.25	1.41
II	2.18	0.52	0.90	0.95	1.66	0.55	0.65	0.63	0.72	1.38	1.57
JJ	1.48	0.53	0.90	0.95	0.95	0.50	0.6	0.64	0.73	0.95	1.07
KK	3.25	0.52	0.90	0.95	2.73	0.44	0.54	0.51	0.61	1.67	1.97
LL	0.58	0.11	0.90	0.95	0.47	0.25	0.35	0.37	0.46	0.22	0.27
MM	3.01	2.46	0.25	0.35	0.55	0.50	0.6	0.30	0.40	0.89	1.19
NN	1.27	0.70	0.25	0.35	0.57	0.50	0.6	0.36	0.46	0.46	0.59
PP	2.11	1.14	0.25	0.35	0.97	0.50	0.6	0.36	0.46	0.77	0.98
QQ	14.95	12.62	0.25	0.35	2.33	0.50	0.6	0.29	0.39	4.32	5.82
RR	3.75	2.00	0.25	0.35	1.75	0.50	0.6	0.37	0.47	1.38	1.75
SS	2.62	1.77	0.25	0.35	0.85	0.50	0.6	0.33	0.43	0.87	1.13
TT	0.48	0.42	0.25	0.35	0.06	0.50	0.6	0.28	0.38	0.14	0.18
OS-1	1.92	1.92	0.25	0.35	0.00	0.50	0.6	0.25	0.35	0.48	0.67
OS-2	1.05	1.05	0.25	0.35	0.00	0.50	0.6	0.25	0.35	0.26	0.37
OS-FIRE	1.80	1.80	0.34	0.49	0.00	0.25	0.35	0.34	0.49	0.61	0.89
MF	11.54	11.54	0.70	0.80	0.00	0.25	0.35	0.70	0.80	8.08	9.23
CM-1	6.92	6.92	0.90	0.90	0.00	0.25	0.35	0.90	0.90	6.23	6.23
CM-2	5.79	5.79	0.90	0.90	0.00	0.25	0.35	0.90	0.90	5.21	5.21
CM-3	4.23	4.23	0.90	0.90	0.00	0.25	0.35	0.90	0.90	3.81	3.81

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALC'D BY: MAL

FINAL DRAINAGE REPORT ~ BASIN RUNOFF SUMMARY

BASIN	WEIGHTED		OVERLAND				STREET / CHANNEL FLOW				Tc TOTAL (min)	INTENSITY		TOTAL FLOWS	
	CA(5)	CA(100)	C(5)	Length (ft)	Height (ft)	Tc (min)	Length (ft)	Slope (%)	Velocity (fps)	Tc (min)		I(5) (in/hr)	I(100) (in/hr)	Q(5) (cfs)	Q(100) (cfs)
A	1.16	1.33	0.25	20	4	2.6	850	4.0%	7.0	2.0	5.0	5.10	9.07	5.9	12.1
B	0.83	0.94	0.5	90	4	6.5	360	5.5%	8.2	0.7	7.2	4.59	8.16	3.8	7.6
C	0.46	0.48	0.9	10	0.2	0.9	350	3.0%	6.1	1.0	5.0	5.10	9.07	2.3	4.4
D	0.86	0.96	0.6	65	6	3.6	350	3.0%	6.1	1.0	5.0	5.10	9.07	4.4	8.7
E	1.16	1.30	0.6	110	2.2	7.8	300	1.8%	4.7	1.1	8.9	4.29	7.62	5.0	9.9
F	1.58	1.80	0.5	50	1	6.3	940	2.0%	4.9	3.2	9.5	4.19	7.44	6.6	13.4
G	2.73	3.16	0.5	200	8	10.0	850	2.0%	4.9	2.9	12.9	3.70	6.58	10.1	20.8
H	2.61	2.92	0.6	50	1	5.3	950	2.0%	4.9	3.2	8.5	4.36	7.75	11.4	22.6
I	0.62	0.70	0.6	85	6	3.6	170	2.0%	4.9	0.6	5.0	5.10	9.07	3.2	6.3
J	0.26	0.28	0.9	10	2	0.4	170	2.0%	4.9	0.6	5.0	5.10	9.07	1.3	2.5
K	1.17	1.29	0.25	20	3	2.9	360	5.0%	7.8	0.8	5.0	5.10	9.07	6.0	11.7
L	2.05	2.32	0.6	170	9.5	6.9	480	4.0%	7.0	1.1	8.1	4.43	7.88	9.1	18.3
M	2.89	3.25	0.6	160	6.5	7.4	470	1.9%	4.8	1.6	9.1	4.25	7.56	12.3	24.6
N	1.81	2.10	0.5	70	1.4	7.5	400	1.7%	4.6	1.5	8.9	4.28	7.60	7.7	15.9
P	2.25	2.80	0.5	200	9	9.7	660	4.0%	7.0	1.6	11.2	3.92	6.97	8.8	18.2
Q	0.93	1.04	0.6	50	1	5.3	660	2.0%	4.9	2.2	7.5	4.54	8.08	4.2	8.4
R	1.90	2.16	0.6	180	17	6.0	660	2.0%	4.9	2.2	8.2	4.41	7.83	8.4	17.1
S	1.06	1.18	0.6	50	1	5.3	650	5.5%	8.2	1.7	7.0	4.64	8.26	4.9	9.7
T	1.93	2.23	0.6	110	2.2	7.8	650	5.5%	8.2	1.7	9.5	4.18	7.43	8.1	16.6
U	1.18	1.40	0.6	110	2.2	7.8	360	2.9%	6.0	1.0	8.8	4.30	7.64	5.1	10.7
V	1.90	2.17	0.6	140	6	6.8	530	3.3%	6.3	1.4	8.2	4.40	7.82	8.3	17.0
W	3.07	3.48	0.6	150	10	6.1	775	3.3%	6.3	2.0	8.2	4.41	7.84	13.6	27.3
X	2.20	2.48	0.6	110	2.2	7.8	1200	4.0%	7.0	2.9	10.7	4.00	7.12	8.8	17.7
Y	1.15	1.29	0.6	50	1	5.3	900	4.0%	7.0	2.1	7.4	4.56	8.11	5.2	10.4
Z	0.55	0.61	0.6	50	1	5.3	370	1.8%	4.7	1.3	6.6	4.73	8.41	2.6	5.1

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALC'D BY: MAL

FINAL DRAINAGE REPORT ~ BASIN RUNOFF SUMMARY

BASIN	WEIGHTED		OVERLAND				STREET / CHANNEL FLOW				Tc	INTENSITY		TOTAL FLOWS	
	CA(5)	CA(100)	C(5)	Length (ft)	Height (ft)	Tc (min)	Length (ft)	Slope (%)	Velocity (fps)	Tc (min)	TOTAL (min)	I(5) (in/hr)	I(100) (in/hr)	Q(5) (cfs)	Q(100) (cfs)
AA	0.52	0.58	0.6	100	4	5.9	190	2.0%	4.9	0.6	6.6	4.74	8.42	2.5	4.9
BB	1.07	1.22	0.6	160	9	6.7	300	3.5%	6.5	0.8	7.5	4.55	8.09	4.8	9.9
CC	0.61	0.69	0.5	50	1	6.3	450	3.0%	6.1	1.2	7.5	4.53	8.05	2.8	5.5
DD	1.52	1.73	0.5	115	3	8.8	850	1.7%	4.6	3.1	11.9	3.83	6.81	5.8	11.8
EE	1.35	1.54	0.5	140	4	9.4	630	2.5%	5.5	1.9	11.3	3.91	6.96	5.3	10.7
FF	0.93	1.05	0.5	90	5	6.0	375	4.0%	7.0	0.9	6.9	4.65	8.27	4.3	8.7
GG	0.82	0.92	0.5	50	1	6.3	400	1.7%	4.6	1.5	7.8	4.49	7.98	3.7	7.3
HH	1.25	1.41	0.5	50	1	6.3	860	4.0%	7.0	1.6	7.9	4.47	7.94	5.6	11.2
II	1.38	1.57	0.6	50	1	5.3	740	2.5%	5.5	2.2	7.5	4.54	8.08	6.3	12.7
JJ	0.95	1.07	0.5	50	1	6.3	830	2.5%	5.5	1.9	8.2	4.41	7.83	4.2	8.4
KK	1.67	1.97	0.6	110	2.2	7.8	400	2.0%	4.9	1.3	9.1	4.24	7.54	7.1	14.8
LL	0.22	0.27	0.6	40	6	2.4	120	2.0%	4.9	0.4	5.0	5.10	9.07	1.1	2.4
MM	0.89	1.19	0.5	65	4	5.0	340	3.4%	6.5	0.9	5.8	4.90	8.70	4.4	10.4
NN	0.46	0.59	0.5	40	2	4.2	70	11.5%	11.9	0.1	5.0	5.10	9.07	2.3	5.3
PP	0.77	0.98	0.5	100	6	6.2	250	3.0%	6.1	0.7	6.9	4.66	8.29	3.6	8.1
QQ	4.32	5.82	0.5	160	24	5.8	700	1.0%	3.5	3.3	9.1	4.24	7.54	18.3	43.8
RR	1.38	1.75	0.5	75	4	5.6	850	2.8%	5.8	1.9	7.5	4.55	8.09	6.3	14.2
SS	0.87	1.13	0.25	125	20	7.1	380	4.7%	7.6	0.8	8.0	4.45	7.92	3.9	8.9
TT	0.14	0.18	0.5	100	8	5.6	280	3.4%	6.5	0.7	6.4	4.78	8.49	0.6	1.6
OS-1	0.46	0.67	0.25	35	8	3.3	350	4.6%	7.5	0.8	5.0	5.10	9.07	2.5	6.1
OS-2	0.26	0.37	0.25	30	6	3.2	375	3.7%	6.8	0.9	5.0	5.10	9.07	1.3	3.3
OS-FIRE	0.61	0.89	0.25	43	0.6	9.3	200	2.0%	4.9	0.7	10.0	4.10	7.29	2.5	6.5
MF	8.08	9.23	0.25	50	1	8.9	800	2.0%	4.9	2.7	11.6	3.86	6.87	31.2	63.4
CM-1	6.23	6.23	0.25	35	6	3.7	600	2.0%	4.9	2.0	5.7	4.93	8.76	30.7	54.6
CM-2	5.21	5.21	0.25	100	8	8.0	620	2.0%	4.9	2.1	10.1	4.09	7.27	21.3	37.9
CM-3	3.81	3.81	0.25	46	11	3.8	570	2.0%	4.9	1.9	5.7	4.93	8.77	18.8	33.4

HYDRAULIC CALCULATIONS



JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

FINAL DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY

Design Point(s)	Contributing Basins	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		Inlet Size
					I(5)	I(100)	Q(5)	Q(100)	
1	Basins KK + II	3.05	3.54	7.8	4.48	7.97	13.7	28.2	14' D-10-R Sump
2	Basin JJ	0.95	1.07	8.2	4.41	7.83	4.2	8.4	6' D-10-R Sump
3	Basin R	1.90	2.18	8.2	4.41	7.83	8.4	17.1	2% ramp curb
4	DP-3 + Basins S + Q	3.89	4.39	8.2	4.41	7.83	17.1	34.4	20' D-10-R Sump
5	Basin T + Basin U	3.11	3.63	9.5	4.18	7.43	13.0	27.0	14' D-10-R Sump
6	Basin BB	1.07	1.22	7.5	4.55	8.09	4.8	9.9	10' D-10-R At-Grade
7	Flow-by DP-6 + Basins P + HH	3.83	4.57	11.2	3.92	6.97	15.0	31.9	18' D-10-R Sump
8	Basin M	2.89	3.25	9.1	4.25	7.56	12.3	24.6	12' D-10-R Sump
9	Basin N	1.81	2.10	8.9	4.28	7.60	7.7	15.9	6' D-10-R Sump
11	Basins Y + L	3.20	3.61	8.1	4.43	7.88	14.2	28.4	20' D-10-R At-Grade
12	Basin W	3.07	3.48	8.2	4.41	7.84	13.6	27.3	14' D-10-R At-Grade
13	Basin X	2.20	2.48	10.7	4.00	7.12	8.8	17.7	14' D-10-R At-Grade
14	Flow-by DP-11 + Flow-by DP-12 + Flow-by DP-13 + Basin AA	3.12	4.65	10.7	4.00	7.12	12.5	33.1	18' D-10-R Sump
15	Basin V	1.90	2.17	8.2	4.40	7.82	8.3	17.0	8' D-10-R At-Grade
16	Basin H	2.61	2.92	8.5	4.36	7.75	11.4	22.6	14' D-10-R At-Grade
17	Flow-by DP-15 + Flow-by DP-16 + Basin Z	2.18	3.27	8.5	4.36	7.75	9.5	25.3	12' D-10-R Sump
18	Basin E	1.16	1.30	8.9	4.29	7.62	5.0	9.9	4' D-10-R Sump
19	Basin G	2.73	3.16	12.9	3.70	6.58	10.1	20.8	10' D-10-R Sump
20	Basin F	1.58	1.80	9.5	4.19	7.44	6.6	13.4	6' D-10-R Sump

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

FINAL DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY

Design Point(s)	Contributing Basins	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		Inlet Size
					I(5)	I(100)	Q(5)	Q(100)	
21	Basin I	0.62	0.70	5.0	5.10	9.07	3.2	6.3	4' D-10-R Sump
22	Basin J	0.26	0.28	5.0	5.10	9.07	1.3	2.5	4' D-10-R Sump
23	Basin D	0.86	0.96	5.0	5.10	9.07	4.4	8.7	4' D-10-R Sump
24	Basin C	0.46	0.48	5.0	5.10	9.07	2.3	4.4	4' D-10-R Sump
25	Basin GG	0.82	0.92	7.8	4.49	7.98	3.7	7.3	4' D-10-R Sump
26	Basin DD	1.52	1.73	11.9	3.83	6.81	5.8	11.8	1.7% Ramp Curb
27	DP-26 + Basin EE	2.87	3.26	12.5	3.75	6.67	10.8	21.8	3.5% Ramp Curb
28	DP-27 + Basin CC + Basin FF	4.41	5.01	12.5	3.75	6.67	16.5	33.4	20' D-10-R At-Grade
29	Flow-by DP-28 + Basin B	2.35	3.31	13.4	3.64	6.48	8.6	21.4	12' D-10-R Sump
30	Basin A	1.16	1.33	5.0	5.10	9.07	5.9	12.1	6' D-10-R Sump
31	Basin MF	8.08	9.23	11.6	3.86	6.87	31.2	63.4	Temp. Sediment Basin
32	Basin CM-1	6.23	6.23	5.7	4.93	8.76	30.7	54.6	Temp. Sediment Basin
33	Basin K	1.17	1.29	5.0	5.10	9.07	6.0	11.7	(2) 4' D-10-R Sump
34	Basin CM-2	5.21	5.21	10.1	4.09	7.27	21.3	37.9	Temp. Sediment Basin
35	Basin CM-3	3.81	3.81	5.7	4.93	8.77	18.8	33.4	Temp. Sediment Basin
36	Basin MM + Basin TT	1.03	1.37	6.4	4.78	8.49	4.9	11.7	Surface flow onto Private Drive
37	Basin OS-2 + Basin NN	0.72	0.95	5.0	5.10	9.07	3.7	8.7	Existing Access Road Crossing
38	Basin PP	0.77	0.98	6.9	4.66	8.29	3.6	8.1	Existing Access Road Crossing
39	Basin RR	1.38	1.75	7.5	4.55	8.09	6.3	14.2	Existing Access Road Crossing
40	Basin SS + Basin OS-1	1.35	1.80	8.0	4.45	7.92	6.0	14.3	Existing Access Road Crossing

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

* PIPES ARE LISTED AT MAXIMUM SIZE REQUIRED TO ACCOMMODATE Q100 FLOWS AT MINIMUM GRADE.
 REFER TO INDIVIDUAL PIPE SHEETS FOR HYDRAULIC INFORMATION.

FINAL DRAINAGE REPORT ~ PIPE ROUTING SUMMARY

Pipe Run	Contributing Basins	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		Pipe Size*
					I(5)	I(100)	Q(5)	Q(100)	
1	DP-1	3.05	3.54	7.8	4.48	7.97	13.7	28.2	30"
2	PIPE 1 + DP-2	4.00	4.61	8.2	4.41	7.83	17.6	36.1	30"
3	DP-5	3.11	3.63	9.5	4.18	7.43	13.0	27.0	30"
4	PIPE 3 + DP-4	7.00	8.03	9.5	4.18	7.43	29.3	59.6	36" @ 0.7% min.
5	DP-6 (Intercepted)	0.74	0.66	7.5	4.55	8.09	3.3	5.4	18"
6	PIPE 4 + PIPE 5	7.74	8.69	10.6	4.01	7.12	31.0	61.9	36" @ 0.8% min.
7	PIPE 2 + PIPE 6	11.74	13.30	10.6	4.01	7.12	47.1	94.8	42" @ 0.8% min.
8	PIPE 7 + DP-7 + DP-8	18.46	21.12	11.9	3.83	6.81	70.7	143.8	48"
9	PIPE 8 + DP-9	20.27	23.22	13.5	3.63	6.45	73.5	149.7	48" @ 1% min.
11	DP-11 (Intercepted)	2.35	2.29	8.1	4.43	7.88	10.4	18.0	24"
12	DP-13 (Intercepted)	1.57	1.52	10.7	4.00	7.12	6.3	10.8	18"
13	PIPE 11 + PIPE 12	3.92	3.81	10.7	4.00	7.12	15.7	27.1	30"
14	DP-12 (Intercepted)	1.94	1.70	8.2	4.41	7.84	8.6	13.3	18"
15	PIPE 13 + PIPE 14	5.86	5.51	10.7	4.00	7.12	23.5	39.2	30"
16	DP-15 (Intercepted)	1.08	0.76	8.2	4.40	7.82	4.8	5.9	18"
17	DP-16 (Intercepted)	1.79	1.68	8.5	4.36	7.75	7.8	13.0	18"
18	PIPE 15 + PIPE 16 + PIPE 17	8.74	7.94	10.7	4.00	7.12	35.0	56.5	36"

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

* PIPES ARE LISTED AT MAXIMUM SIZE REQUIRED TO ACCOMMODATE Q100 FLOWS AT MINIMUM GRADE.
 REFER TO INDIVIDUAL PIPE SHEETS FOR HYDRAULIC INFORMATION.

FINAL DRAINAGE REPORT ~ PIPE ROUTING SUMMARY

Pipe Run	Contributing Basins	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		Pipe Size*
					I(5)	I(100)	Q(5)	Q(100)	
19	PIPE 18 + DP-14	11.86	12.59	10.7	4.00	7.12	47.5	89.6	42"
20	PIPE 19 + DP-17	14.04	15.86	10.7	4.00	7.12	56.2	112.8	42"
21	PIPE 20 + DP-21 + DP-22	14.93	16.83	12.1	3.80	6.76	56.8	113.8	42"
22	PIPE 21 + DP-23 + DP-24	16.25	18.28	15.7	3.39	6.03	55.1	110.3	42"
23	DP-18	1.16	1.30	8.9	4.29	7.62	5.0	9.9	18"
24	PIPE 23 + DP-19	3.89	4.46	12.9	3.70	6.58	14.4	29.3	30"
25	PIPE 24 + DP-20	5.47	6.26	12.9	3.70	6.58	20.2	41.2	30"
26	PIPE 22 + PIPE 25	21.71	24.53	15.7	3.39	6.03	73.7	148.1	48"
27	PIPE 26 + DP-25	22.54	25.45	17.9	3.18	5.66	71.7	143.9	48"
28	DP-28 (Intercepted)	2.88	2.64	12.5	3.75	6.67	10.8	17.6	18"
29a	Basin OS-FIRE	0.61	0.89	10.0	4.10	7.29	2.5	6.5	18"
29b	PIPE 29a + DP-29	2.96	4.19	13.4	3.64	6.48	10.8	27.2	30"
30a	DP-30	1.16	1.33	5.0	5.10	9.07	5.9	12.1	18"
30b	PIPE 28 + PIPE 29b + PIPE 30a	7.01	8.17	13.4	3.64	6.48	25.5	52.9	36"
31a	DP-31	8.08	9.23	11.6	3.66	6.87	31.2	63.4	36"
31b	PIPE 30b + PIPE 31a	15.09	17.40	13.4	3.64	6.48	55.0	112.7	42"
32	DP-32	6.23	6.23	5.7	4.93	8.76	30.7	54.6	30"
33	DP-33	1.17	1.29	5.0	5.10	9.07	6.0	11.7	24"
34	DP-34	5.21	5.21	10.1	4.09	7.27	21.3	37.9	36"
35	PIPE 33 + PIPE 34	6.38	6.50	10.1	4.09	7.27	26.1	47.2	36"
36	DP-35	3.81	3.81	5.7	4.93	8.77	18.8	33.4	

JOB NAME:	INDIGO RANCH NORTH AT STETSON RIL
JOB NUMBER:	1115.00
DATE:	07/20/12
CALCULATED BY:	MAL

FINAL DRAINAGE REPORT ~ PIPE TRAVEL TIMES

PIPE RUN	STREET / CHANNEL FLOW			
	Length	Slope	Velocity	Tc
	(ft)	(%)	(fps)	(min)
4	430	3.5%	6.5	1.1
6	375	2.0%	4.9	1.3
8	450	1.7%	4.6	1.6
20	300	1.0%	3.5	1.4
21	750	1.0%	3.5	3.6
26	480	1.0%	3.5	2.3
DP-26 TO DP-27	250	3.5%	6.5	0.6
DP-28 TO DP-29	450	6.0%	8.6	0.9

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

DESIGN POINT 1

Total Flow: $Q_5 = \underline{13.7}$ cfs
 $Q_{100} = \underline{28.2}$ cfs

Maximum allowable ponding depth at sump:

$D_5 = 0.50$
 $D_{100} = 0.67$ (dmax)

$Q_i = 1.7(Li + 1.8(W))(dmax + w/12)^{1.85}$

Clogging Factor = 1.25
 $Li (1.25) =$ Length of inlet opening

5-Year Event: 8 foot inlet required

100-Year Event: 14 foot inlet required

INSTALL A PUBLIC 14 FT D-10-R INLET TO ACCEPT BOTH 5YR & 100 YR DEVELOPED FLOWS AT THIS DESIGN POINT.

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

DESIGN POINT 2

Total Flow: $Q_5 = \underline{4.2}$ cfs
 $Q_{100} = \underline{8.4}$ cfs

Maximum allowable ponding depth at sump:

$D_5 = 0.50$
 $D_{100} = 0.67$ (dmax)
 $Q_i = 1.7(L_i + 1.8(W))(d_{max} + w/12)^{1.85}$

Clogging Factor = 1.25
 $L_i (1.25) =$ Length of inlet opening

5-Year Event: foot inlet required

100-Year Event: foot inlet required

INSTALL A PUBLIC FT D-10-R INLET TO ACCEPT BOTH 5YR & 100 YR DEVELOPED FLOWS AT THIS DESIGN POINT.

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

DESIGN POINT 4

Total Flow: $Q_5 = 17.1$ cfs
 $Q_{100} = 34.4$ cfs

Maximum allowable ponding depth at sump:

$D_5 = 0.50$
 $D_{100} = 0.67$ (dmax)

$Q_i = 1.7(Li + 1.8(W))(dmax + w/12)^{1.85}$

Clogging Factor = 1.25
 $Li (1.25) =$ Length of inlet opening

5-Year Event: foot inlet required

100-Year Event: foot inlet required

INSTALL A PUBLIC FT D-10-R INLET TO ACCEPT BOTH 5YR & 100 YR DEVELOPED FLOWS AT THIS DESIGN POINT.

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

DESIGN POINT 5

Total Flow: $Q_5 = 13.0$ cfs
 $Q_{100} = 27.0$ cfs

Maximum allowable ponding depth at sump:

$D_5 = 0.50$
 $D_{100} = 0.67$ (dmax)

$Q_i = 1.7(L_i + 1.8(W))(d_{max} + w/12)^{1.85}$

Clogging Factor = 1.25
 $L_i(1.25) =$ Length of inlet opening

5-Year Event: foot inlet required

100-Year Event: foot inlet required

INSTALL A PUBLIC FT D-10-R INLET TO ACCEPT BOTH 5YR & 100 YR DEVELOPED FLOWS AT THIS DESIGN POINT.

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

DESIGN POINT		6	100 YEAR FLOW		
Q(100)	9.9	I(100)	8.1		
DEPTH	0.34	Fr	2.28	Inlet size ? L(i) =	10
SPREAD	10.5	L(1)	18.4	If Li < L(2) then Qi =	5.4
CROSS SLOPE	2.0%	L(2)	11.1	If Li > L(2) then Qi =	5.7
STREET SLOPE	3.5%	L(3)	39.5	FB =	4.5
				CA(eqv.) =	0.56

5 YEAR FLOW					
Q(5)	4.8	I(5)	4.5		
DEPTH	0.27	Fr	2.10	Inlet size ? L(i) =	10
SPREAD	7.3	L(1)	11.7	If Li < L(2) then Qi =	4.1
CROSS SLOPE	2.0%	L(2)	7.1	If Li > L(2) then Qi =	3.3
STREET SLOPE	3.5%	L(3)	25.2	FB =	1.5
				CA(eqv.) =	0.33

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

DESIGN POINT 7

Total Flow: $Q_5 = \underline{15.0 \text{ cfs}}$
 $Q_{100} = \underline{31.9 \text{ cfs}}$

Maximum allowable ponding depth at sump:

$D_5 = 0.50$
 $D_{100} = 0.67 \text{ (dmax)}$

$Q_i = 1.7(L_i + 1.8(W))(d_{max} + w/12)^{1.85}$

Clogging Factor = 1.25
 $L_i (1.25) = \text{Length of inlet opening}$

5-Year Event: 10 foot inlet required

100-Year Event: 18 foot inlet required

INSTALL A PUBLIC 18 FT D-10-R INLET TO ACCEPT BOTH 5YR & 100 YR DEVELOPED FLOWS AT THIS DESIGN POINT.

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

DESIGN POINT 8

Total Flow: $Q_5 = 12.3$ cfs
 $Q_{100} = 24.6$ cfs

Maximum allowable ponding depth at sump:

$D_5 = 0.50$
 $D_{100} = 0.67$ (dmax)
 $Q_i = 1.7(L_i + 1.8(W))(d_{max} + w/12)^{1.85}$

Clogging Factor = 1.25
 $L_i(1.25)$ = Length of inlet opening

5-Year Event: foot inlet required

100-Year Event: foot inlet required

INSTALL A PUBLIC FT D-10-R INLET TO ACCEPT BOTH 5YR & 100 YR DEVELOPED FLOWS AT THIS DESIGN POINT.

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

DESIGN POINT 9

Total Flow: $Q_5 = 7.7$ cfs
 $Q_{100} = 15.9$ cfs

Maximum allowable ponding depth at sump:

$D_5 = 0.50$
 $D_{100} = 0.67$ (dmax)
 $Q_i = 1.7(L_i + 1.8(W))(d_{max} + w/12)^{1.85}$

Clogging Factor = 1.25
 $L_i(1.25) =$ Length of inlet opening

5-Year Event: foot inlet required

100-Year Event: foot inlet required

INSTALL A PUBLIC FT D-10-R INLET TO ACCEPT BOTH 5YR & 100 YR DEVELOPED FLOWS AT THIS DESIGN POINT.

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

DESIGN POINT 11 100 YEAR FLOW

Q(100)	28.4	I(100)	7.9		
DEPTH	0.52	Fr	1.94	Inlet size ? L(i) =	20
SPREAD	19.5	L(1)	29.2	If Li < L(2) then Qi =	19.5
CROSS SLOPE	2.0%	L(2)	17.5	If Li > L(2) then Qi =	18.0
STREET SLOPE	2.0%	L(3)	62.5	FB =	10.4
				CA(eqv.) =	1.32

5 YEAR FLOW

Q(5)	14.2	I(5)	4.4		
DEPTH	0.41	Fr	1.83	Inlet size ? L(i) =	20
SPREAD	14.3	L(1)	20.1	If Li < L(2) then Qi =	14.1
CROSS SLOPE	2.0%	L(2)	12.1	If Li > L(2) then Qi =	10.4
STREET SLOPE	2.0%	L(3)	43.1	FB =	3.7
				CA(eqv.) =	0.84

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

DESIGN POINT 12 100 YEAR FLOW

Q(100)	27.3	I(100)	7.8		
DEPTH	0.48	Fr	2.13	Inlet size ? L(i) =	14
SPREAD	17.5	L(1)	28.7	If Li < L(2) then Qi =	13.3
CROSS SLOPE	2.0%	L(2)	17.2	If Li > L(2) then Qi =	15.1
STREET SLOPE	2.5%	L(3)	61.5	FB =	14.0
				CA(eqv.)=	1.78

5 YEAR FLOW

Q(5)	13.6	I(5)	4.4		
DEPTH	0.39	Fr	2.02	Inlet size ? L(i) =	14
SPREAD	13.3	L(1)	20.6	If Li < L(2) then Qi =	9.2
CROSS SLOPE	2.0%	L(2)	12.4	If Li > L(2) then Qi =	8.6
STREET SLOPE	2.5%	L(3)	44.1	FB =	5.0
				CA(eqv.)=	1.13

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

DESIGN POINT 13 100 YEAR FLOW

Q(100)	17.7	I(100)	7.1		
DEPTH	0.44	Fr	1.86	Inlet size ? L(i) =	14
SPREAD	15.5	L(1)	22.2	If Li < L(2) then Qi =	11.1
CROSS SLOPE	2.0%	L(2)	13.3	If Li > L(2) then Qi =	10.8
STREET SLOPE	2.0%	L(3)	47.6	FB =	6.8
				CA(eqv.)=	0.96

5 YEAR FLOW

Q(5)	8.8	I(5)	4.0		
DEPTH	0.35	Fr	1.75	Inlet size ? L(i) =	14
SPREAD	11.3	L(1)	15.1	If Li < L(2) then Qi =	8.1
CROSS SLOPE	2.0%	L(2)	9.1	If Li > L(2) then Qi =	6.3
STREET SLOPE	2.0%	L(3)	32.4	FB =	2.5
				CA(eqv.)=	0.63

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

DESIGN POINT 14

Total Flow: $Q_5 = 12.5$ cfs
 $Q_{100} = 33.1$ cfs

Maximum allowable ponding depth at sump:

$D_5 = 0.50$
 $D_{100} = 0.67$ (dmax)
 $Q_i = 1.7(L_i + 1.8(W))(d_{max} + w/12)^{1.85}$

Clogging Factor = 1.25
 $L_i (1.25) =$ Length of inlet opening

5-Year Event: foot inlet required

100-Year Event: foot inlet required

INSTALL A PUBLIC FT D-10-R INLET TO ACCEPT BOTH 5YR & 100 YR DEVELOPED FLOWS AT THIS DESIGN POINT.

JOB NAME:	<u>INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.</u>
JOB NUMBER:	<u>1115.00</u>
DATE:	<u>07/20/12</u>
CALCULATED BY:	<u>MAL</u>

DESIGN POINT		15	100 YEAR FLOW		
Q(100)	17.0	I(100)	7.8		
DEPTH	0.42	Fr	2.05	Inlet size ? L(i) =	8
SPREAD	14.5	L(1)	22.9	If Li < L(2) then Qi =	5.9
CROSS SLOPE	2.0%	L(2)	13.8	If Li > L(2) then Qi =	8.2
STREET SLOPE	2.5%	L(3)	49.2	FB =	11.1
				CA(eqv.)=	1.41

		5 YEAR FLOW			
Q(5)	8.3	I(5)	4.4		
DEPTH	0.33	Fr	1.92	Inlet size ? L(i) =	8
SPREAD	10.3	L(1)	15.1	If Li < L(2) then Qi =	4.4
CROSS SLOPE	2.0%	L(2)	9.1	If Li > L(2) then Qi =	4.8
STREET SLOPE	2.5%	L(3)	32.4	FB =	3.6
				CA(eqv.)=	0.81

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

DESIGN POINT		16	100 YEAR FLOW		
Q(100)	22.6	I(100)	7.8		
DEPTH	0.48	Fr	1.81	Inlet size ? L(i) =	14
SPREAD	17.5	L(1)	24.4	If Li < L(2) then Qi =	13.0
CROSS SLOPE	2.0%	L(2)	14.6	If Li > L(2) then Qi =	13.4
STREET SLOPE	1.8%	L(3)	52.2	FB =	9.6
				CA(eqv.) =	1.24

5 YEAR FLOW					
Q(5)	11.4	I(5)	4.4		
DEPTH	0.38	Fr	1.70	Inlet size ? L(i) =	14
SPREAD	12.8	L(1)	16.7	If Li < L(2) then Qi =	9.5
CROSS SLOPE	2.0%	L(2)	10.0	If Li > L(2) then Qi =	7.8
STREET SLOPE	1.8%	L(3)	35.8	FB =	3.6
				CA(eqv.) =	0.82

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

DESIGN POINT 17

Total Flow: $Q_5 = \underline{9.5}$ cfs
 $Q_{100} = \underline{25.3}$ cfs

Maximum allowable ponding depth at sump:

$D_5 = 0.50$
 $D_{100} = 0.67$ (dmax)

$Q_i = 1.7(Li + 1.8(W))(dmax + w/12)^{1.85}$

Clogging Factor = 1.25
 $Li (1.25) =$ Length of inlet opening

5-Year Event: foot inlet required

100-Year Event: foot inlet required

INSTALL A PUBLIC FT D-10-R INLET TO ACCEPT BOTH 5YR & 100 YR DEVELOPED FLOWS AT THIS DESIGN POINT.

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

DESIGN POINT 18

Total Flow: $Q_5 = 5.0$ cfs
 $Q_{100} = 9.9$ cfs

Maximum allowable ponding depth at sump:

$D_5 = 0.50$
 $D_{100} = 0.67$ (dmax)

$Q_i = 1.7(L_i + 1.8(W))(d_{max} + w/12)^{1.85}$

Clogging Factor = 1.25
 $L_i (1.25) =$ Length of inlet opening

5-Year Event: foot inlet required

100-Year Event: foot inlet required

INSTALL A PUBLIC FT D-10-R INLET TO ACCEPT BOTH 5YR & 100 YR DEVELOPED FLOWS AT THIS DESIGN POINT.

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

DESIGN POINT 19

Total Flow: $Q_5 = 10.1$ cfs
 $Q_{100} = 20.8$ cfs

Maximum allowable ponding depth at sump:

$D_5 = 0.50$
 $D_{100} = 0.67$ (dmax)
 $Q_i = 1.7(Li+1.8(W))(dmax + w/12)^{1.85}$

Clogging Factor = 1.25
 $Li(1.25) =$ Length of inlet opening

5-Year Event: foot inlet required

100-Year Event: foot inlet required

INSTALL A PUBLIC FT D-10-R INLET TO ACCEPT BOTH 5YR & 100 YR DEVELOPED FLOWS AT THIS DESIGN POINT.

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

DESIGN POINT 20

Total Flow: $Q_5 = 6.6$ cfs
 $Q_{100} = 13.4$ cfs

Maximum allowable ponding depth at sump:

$D_5 = 0.50$
 $D_{100} = 0.67$ (dmax)
 $Q_i = 1.7(L_i + 1.8(W))(d_{max} + w/12)^{1.85}$

Clogging Factor = 1.25
 $L_i (1.25) =$ Length of inlet opening

5-Year Event: foot inlet required

100-Year Event: foot inlet required

INSTALL A PUBLIC FT D-10-R INLET TO ACCEPT BOTH 5YR & 100 YR DEVELOPED FLOWS AT THIS DESIGN POINT.

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

DESIGN POINT 21

Total Flow: $Q_5 = \underline{3.2}$ cfs
 $Q_{100} = \underline{6.3}$ cfs

Maximum allowable ponding depth at sump:

$D_5 = 0.50$
 $D_{100} = 0.67$ (dmax)
 $Q_i = 1.7(L_i + 1.8(W))(d_{max} + w/12)^{1.85}$

Clogging Factor = 1.25
 $L_i (1.25) =$ Length of inlet opening

5-Year Event: foot inlet required

100-Year Event: foot inlet required

INSTALL A PUBLIC FT D-10-R INLET TO ACCEPT BOTH 5YR & 100 YR DEVELOPED FLOWS AT THIS DESIGN POINT.

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

DESIGN POINT 22

Total Flow: $Q_5 = \underline{1.3 \text{ cfs}}$
 $Q_{100} = \underline{2.5 \text{ cfs}}$

Maximum allowable ponding depth at sump:

$D_5 = 0.50$
 $D_{100} = 0.67 \text{ (dmax)}$
 $Q_i = 1.7(Li+1.8(W))(dmax + w/12)^{1.85}$

Clogging Factor = 1.25
 $Li (1.25) = \text{Length of inlet opening}$

5-Year Event: foot inlet required

100-Year Event: foot inlet required

INSTALL A PUBLIC FT D-10-R INLET TO ACCEPT BOTH 5YR & 100 YR DEVELOPED FLOWS AT THIS DESIGN POINT.

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

DESIGN POINT 23

Total Flow: $Q_5 = \frac{4.4}{\text{cfs}}$
 $Q_{100} = \frac{8.7}{\text{cfs}}$

Maximum allowable ponding depth at sump:

$D_5 = 0.50$
 $D_{100} = 0.67 \text{ (dmax)}$
 $Q_i = 1.7(L_i + 1.8(W))(d_{\text{max}} + w/12)^{1.85}$

Clogging Factor = 1.25
 $L_i (1.25) = \text{Length of inlet opening}$

5-Year Event: foot inlet required

100-Year Event: foot inlet required

INSTALL A PUBLIC FT D-10-R INLET TO ACCEPT BOTH 5YR & 100 YR DEVELOPED FLOWS AT THIS DESIGN POINT.

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

DESIGN POINT 24

Total Flow: $Q_5 = \underline{2.3 \text{ cfs}}$
 $Q_{100} = \underline{4.4 \text{ cfs}}$

Maximum allowable ponding depth at sump:

$D_5 = 0.50$
 $D_{100} = 0.67 \text{ (dmax)}$

$Q_i = 1.7(Li + 1.8(W))(dmax + w/12)^{1.85}$

Clogging Factor = 1.25
 $Li \text{ (1.25)} = \text{Length of inlet opening}$

5-Year Event: foot inlet required

100-Year Event: foot inlet required

INSTALL A PUBLIC FT D-10-R INLET TO ACCEPT BOTH 5YR & 100 YR DEVELOPED FLOWS AT THIS DESIGN POINT.

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

DESIGN POINT 25

Total Flow: $Q_5 = \frac{3.7}{\text{cfs}}$
 $Q_{100} = \frac{7.3}{\text{cfs}}$

Maximum allowable ponding depth at sump:

$D_5 = 0.50$
 $D_{100} = 0.67 \text{ (dmax)}$

$Q_i = 1.7(L_i + 1.8(W))(d_{\text{max}} + w/12)^{1.85}$

Clogging Factor = 1.25
 $L_i (1.25) = \text{Length of inlet opening}$

5-Year Event: foot inlet required

100-Year Event: foot inlet required

INSTALL A PUBLIC FT D-10-R INLET TO ACCEPT BOTH 5YR & 100 YR DEVELOPED FLOWS AT THIS DESIGN POINT.

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

DESIGN POINT 28 100 YEAR FLOW

Q(100)	33.4	I(100)	6.7		
DEPTH	0.47	Fr	2.32	Inlet size ? L(i) =	16
SPREAD	17.0	L(1)	30.4	If Li < L(2) then Qi =	17.6
CROSS SLOPE	2.0%	L(2)	18.2	If Li > L(2) then Qi =	19.0
STREET SLOPE	3.0%	L(3)	65.1	FB =	15.8
				CA(eqv.)=	2.37

5 YEAR FLOW

Q(5)	16.5	I(5)	3.7		
DEPTH	0.38	Fr	2.20	Inlet size ? L(i) =	16
SPREAD	12.8	L(1)	21.6	If Li < L(2) then Qi =	12.3
CROSS SLOPE	2.0%	L(2)	12.9	If Li > L(2) then Qi =	10.8
STREET SLOPE	3.0%	L(3)	46.2	FB =	5.7
				CA(eqv.)=	1.52

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

DESIGN POINT 29

Total Flow: $Q_5 = 8.6 \text{ cfs}$
 $Q_{100} = 21.4 \text{ cfs}$

Maximum allowable ponding depth at sump:

$D_5 = 0.50$
 $D_{100} = 0.67 \text{ (dmax)}$
 $Q_i = 1.7(L_i + 1.8(W))(d_{max} + w/12)^{1.85}$

Clogging Factor = 1.25
 $L_i (1.25) = \text{Length of inlet opening}$

5-Year Event: foot inlet required

100-Year Event: foot inlet required

INSTALL A PUBLIC FT D-10-R INLET TO ACCEPT BOTH 5YR & 100 YR DEVELOPED FLOWS AT THIS DESIGN POINT.

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

DESIGN POINT 30

Total Flow: $Q_5 = 5.9$ cfs
 $Q_{100} = 12.1$ cfs

Maximum allowable ponding depth at sump:

$D_5 = 0.50$
 $D_{100} = 0.67$ (dmax)

$Q_i = 1.7(Li + 1.8(W))(dmax + w/12)^{1.85}$

Clogging Factor = 1.25
 $Li (1.25) =$ Length of inlet opening

5-Year Event: foot inlet required

100-Year Event: foot inlet required

INSTALL A PUBLIC FT D-10-R INLET TO ACCEPT BOTH 5YR & 100 YR DEVELOPED FLOWS AT THIS DESIGN POINT.

JOB NAME: INDIGO RANCH NORTH AT STETSON RIDGE M.D.D.P.
 JOB NUMBER: 1115.00
 DATE: 07/20/12
 CALCULATED BY: MAL

DESIGN POINT 33

Total Flow: $Q_5 = \frac{6.0}{\text{cfs}}$
 $Q_{100} = \frac{11.7}{\text{cfs}}$

Maximum allowable ponding depth at sump:

$D_5 = 0.50$
 $D_{100} = 0.67 \text{ (dmax)}$
 $Q_i = 1.7(L_i + 1.8(W))(d_{\text{max}} + w/12)^{1.85}$

Clogging Factor = 1.25
 $L_i (1.25) = \text{Length of inlet opening}$

5-Year Event: foot inlet required

100-Year Event: foot inlet required

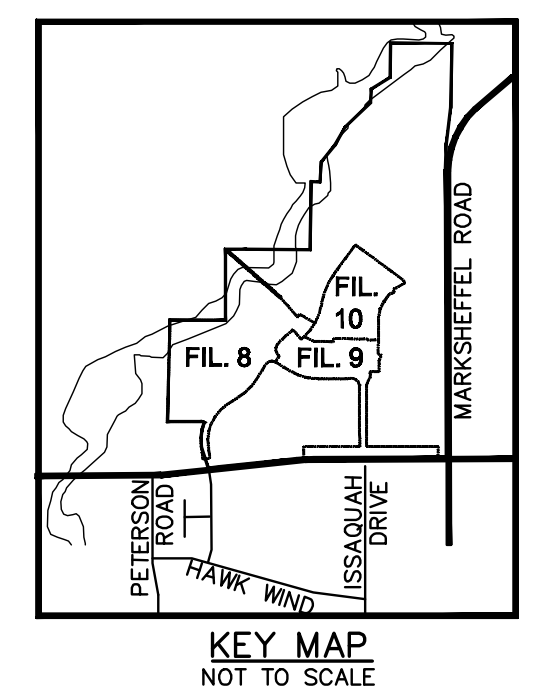
INSTALL A PUBLIC FT D-10-R INLET TO ACCEPT BOTH 5YR & 100 YR DEVELOPED FLOWS AT THIS DESIGN POINT.

DRAINAGE MAPS

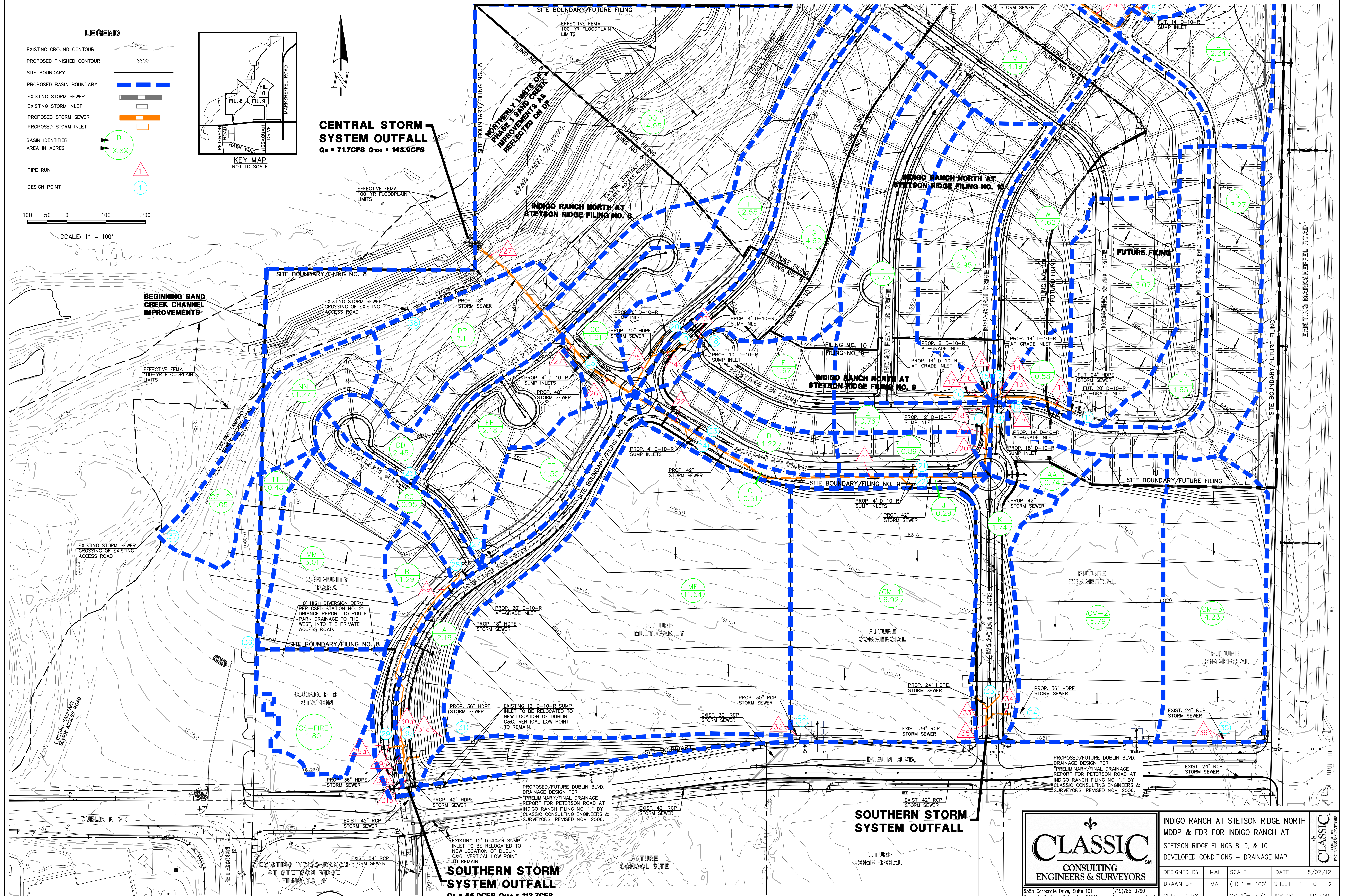
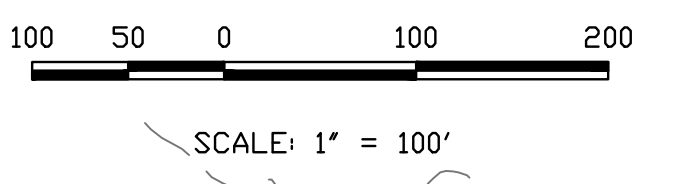


LEGEND

- EXISTING GROUND CONTOUR (8800)
- PROPOSED FINISHED CONTOUR (8800)
- SITE BOUNDARY
- PROPOSED BASIN BOUNDARY
- EXISTING STORM SEWER
- EXISTING STORM INLET
- PROPOSED STORM SEWER
- PROPOSED STORM INLET
- BASIN IDENTIFIER (D)
- AREA IN ACRES (X.XX)
- PIPE RUN
- DESIGN POINT (1)



CENTRAL STORM SYSTEM OUTFALL
 $Q_5 = 71.7\text{CFS}$ $Q_{100} = 143.9\text{CFS}$



BEGINNING SAND CREEK CHANNEL IMPROVEMENTS

SOUTHERN STORM SYSTEM OUTFALL
 $Q_5 = 55.0\text{CFS}$ $Q_{100} = 112.7\text{CFS}$

SOUTHERN STORM SYSTEM OUTFALL

CLASSIC
 CONSULTING ENGINEERS & SURVEYORS

INDIGO RANCH AT STETSON RIDGE NORTH
 MDDP & FDR FOR INDIGO RANCH AT
 STETSON RIDGE FILINGS 8, 9, & 10
 DEVELOPED CONDITIONS - DRAINAGE MAP

DESIGNED BY	MAL	SCALE	DATE	8/07/12
DRAWN BY	MAL	(H) 1" = 100'	SHEET	1 OF 2
CHECKED BY	(V) 1" = N/A	JOB NO.	1115.00	

6385 Corporate Drive, Suite 101
 Colorado Springs, Colorado 80919
 (719)785-0790
 (719)785-0799(Fax)

CLASSIC
 CONSULTING ENGINEERS & SURVEYORS

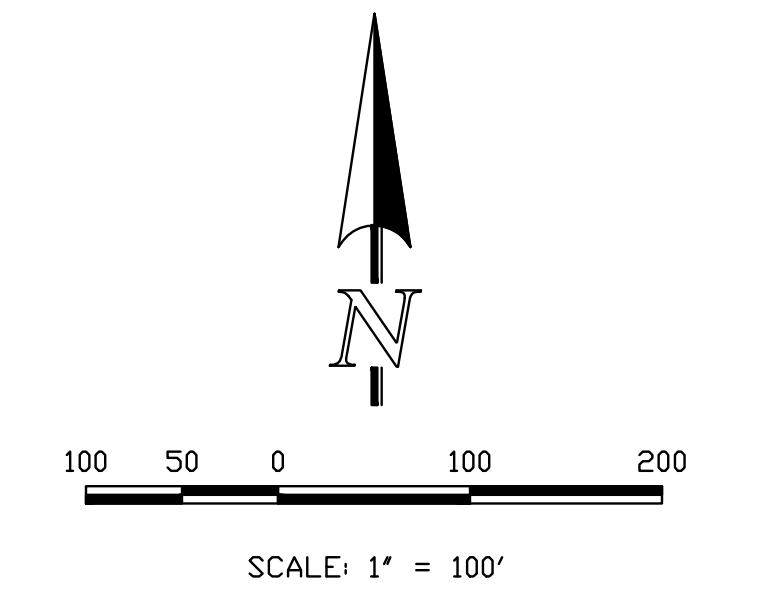
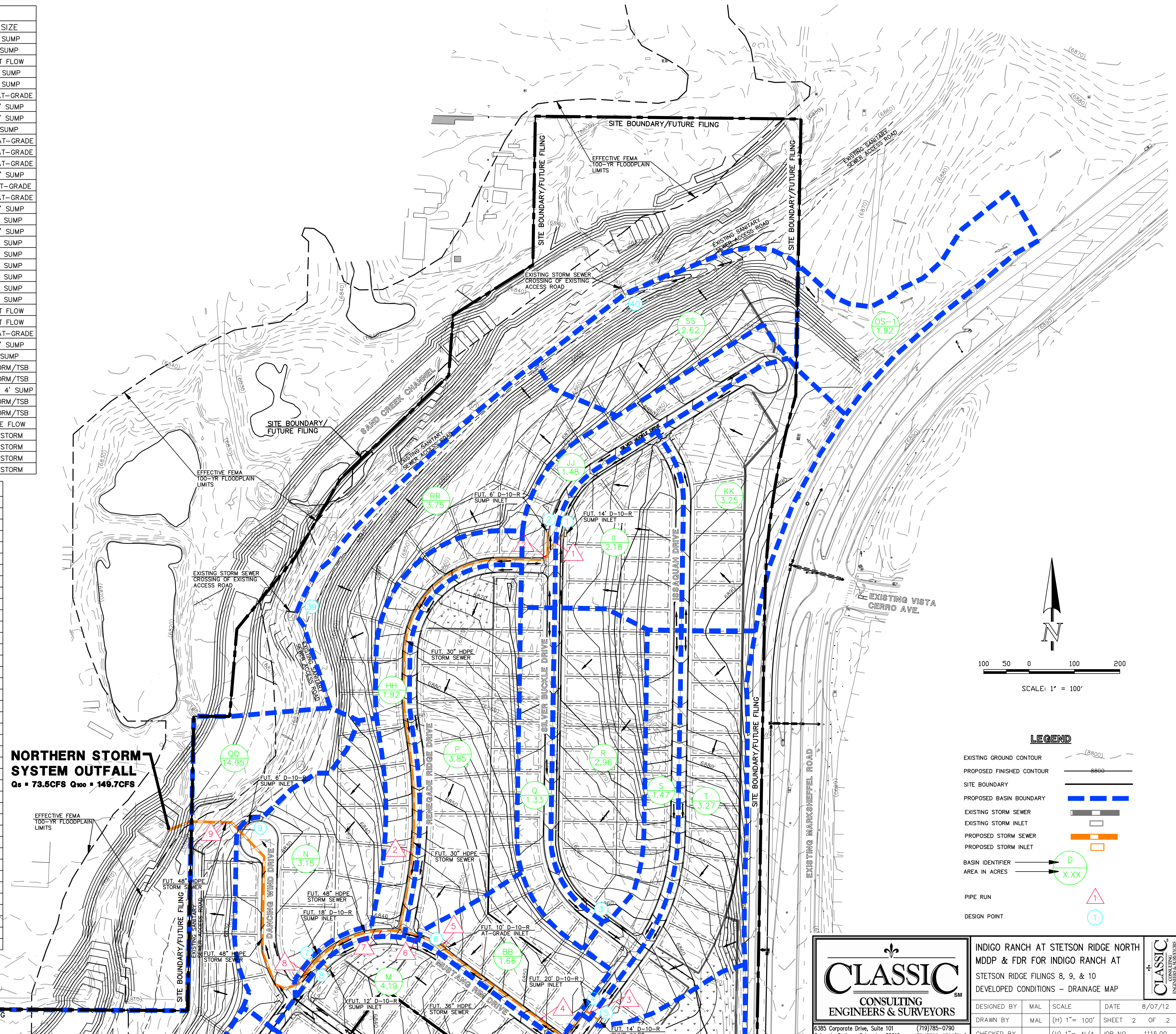
X:\111500\ADMIN\DEVELOPMENT\INDIGO-RANCH.dwg, 12/21/2012 11:21:13 PM, DWG TO PDF.plt

BASIN RUNOFF SUMMARY		
BASIN	Q5 (CFS)	Q100 (CFS)
A	5.9	12.1
B	3.8	7.6
C	2.3	4.4
D	4.4	8.7
E	5.0	9.9
F	6.6	13.4
G	10.1	20.8
H	11.4	22.6
I	3.2	6.3
J	1.3	2.5
K	6.0	11.7
L	9.1	18.3
M	12.3	24.6
N	7.7	15.9
P	8.8	18.2
Q	4.2	8.4
R	8.4	17.1
S	4.9	9.7
T	8.1	16.6
U	5.1	10.7
V	8.3	17.0
W	13.6	27.3
X	8.8	17.7
Y	5.2	10.4
Z	2.6	5.1
AA	2.5	4.9
BB	4.8	9.9
CC	2.8	5.5
DD	5.8	11.8
EE	5.3	10.7
FF	4.3	8.7
GG	3.7	7.3
HH	5.6	11.2
II	6.3	12.7
JJ	4.2	8.4
KK	7.1	14.8
LL	1.1	2.4
MM	4.4	10.4
NN	2.3	5.3
PP	3.6	8.1
QQ	18.3	43.8
RR	6.3	14.2
SS	3.9	8.9
TT	0.6	1.6
OS-1	2.5	6.1
OS-2	1.3	3.3
OS-FIRE	2.5	6.5
MF	31.2	63.4
CM-1	30.7	54.6
CM-2	21.3	37.9
CM-3	18.8	33.4

DESIGN POINT SUMMARY			
DESIGN POINT	Q5 (CFS)	Q100 (CFS)	INLET SIZE
1	13.7	28.2	(F) 14' SUMP
2	4.2	8.4	(F) 6' SUMP
3	8.4	17.1	STREET FLOW
4	17.1	34.4	(F) 20' SUMP
5	13.0	27.0	(F) 14' SUMP
6	4.8	9.9	(F) 10' AT-GRADE
7	15.0	31.9	(F) 18' SUMP
8	12.3	24.6	(F) 12' SUMP
9	7.7	15.9	(F) 6' SUMP
11	14.2	28.4	(P) 20' AT-GRADE
12	13.6	27.3	(P) 14' AT-GRADE
13	8.8	17.7	(P) 14' AT-GRADE
14	12.5	33.1	(P) 18' SUMP
15	8.3	17.0	(P) 8' AT-GRADE
16	11.4	22.6	(P) 14' AT-GRADE
17	9.5	25.3	(P) 12' SUMP
18	5.0	9.9	(P) 4' SUMP
19	10.1	20.8	(P) 10' SUMP
20	6.6	13.4	(P) 4' SUMP
21	3.2	6.3	(P) 4' SUMP
22	1.3	2.5	(P) 4' SUMP
23	4.4	8.7	(P) 4' SUMP
24	2.3	4.4	(P) 4' SUMP
25	3.7	7.3	(P) 4' SUMP
26	5.8	11.8	STREET FLOW
27	10.8	21.8	STREET FLOW
28	16.5	33.4	(P) 20' AT-GRADE
29	8.6	21.4	(P) 12' SUMP
30	5.9	12.1	(P) 6' SUMP
31	31.2	63.4	FUT. STORM/TSB
32	30.7	54.6	FUT. STORM/TSB
33	6.0	11.7	(P) DUAL 4' SUMP
34	21.3	37.9	FUT. STORM/TSB
35	18.8	33.4	FUT. STORM/TSB
36	4.9	11.7	SURFACE FLOW
37	3.7	8.7	EXIST. STORM
38	3.6	8.1	EXIST. STORM
39	6.3	14.2	EXIST. STORM
40	6.0	14.3	EXIST. STORM

PIPE ROUTING SUMMARY			
PIPE RUN	Q5 (CFS)	Q100 (CFS)	PIPE SIZE
1	13.7	28.2	(F) 30"
2	17.6	36.1	(F) 30"
3	13.0	27.0	(F) 30"
4	29.3	59.6	(F) 36"
5	3.3	5.4	(F) 18"
6	31.0	61.9	(F) 36"
7	47.1	94.8	(F) 42"
8	70.7	143.8	(F) 48"
9	73.5	149.7	(F) 48"
11	10.4	18.0	(P) 24"
12	6.3	10.8	(P) 18"
13	15.7	27.1	(P) 30"
14	8.6	13.3	(P) 18"
15	23.5	39.2	(P) 30"
16	4.8	5.9	(P) 18"
17	7.8	13.0	(P) 18"
18	35.0	56.5	(P) 36"
19	47.5	89.6	(P) 42"
20	56.2	112.8	(P) 42"
21	56.8	113.8	(P) 42"
22	55.1	110.3	(P) 42"
23	5.0	9.9	(P) 18"
24	14.4	29.3	(P) 30"
25	20.2	41.2	(P) 30"
26	73.7	148.1	(P) 48"
27	71.7	143.9	(P) 48"
28	10.8	17.6	(P) 18"
29a	2.5	6.5	(P) 18"
29b	10.8	27.2	(P) 30"
30a	5.9	12.1	(P) 18"
30b	25.5	52.9	(P) 36"
31a	31.2	63.4	(P) 36"
31b	55.0	112.7	(P) 42"
32	30.7	54.6	(P) 30"
33	6.0	11.7	(P) 24"
34	21.3	37.9	(P) 36"
35	26.1	47.2	(P) 36"
36	18.8	33.4	(P) 30"

NORTHERN STORM SYSTEM OUTFALL
 $Q_5 = 73.5\text{CFS}$ $Q_{100} = 149.7\text{CFS}$



LEGEND

EXISTING GROUND CONTOUR	(---) (6800)
PROPOSED FINISHED CONTOUR	(---) 8866
SITE BOUNDARY	(---) (6840)
PROPOSED BASIN BOUNDARY	(---) (6840)
EXISTING STORM SEWER	(---) (6840)
EXISTING STORM INLET	(---) (6840)
PROPOSED STORM SEWER	(---) (6840)
PROPOSED STORM INLET	(---) (6840)
BASIN IDENTIFIER	(---) (6840)
AREA IN ACRES	(---) (6840)
PIPE RUN	(---) (6840)
DESIGN POINT	(---) (6840)

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INDIGO RANCH AT STETSON RIDGE NORTH
 MDDP & FDR FOR INDIGO RANCH AT
 STETSON RIDGE FILINGS 8, 9, & 10
 DEVELOPED CONDITIONS - DRAINAGE MAP

DESIGNED BY	MAL	SCALE	DATE	8/07/12
DRAWN BY	MAL	(H) 1" = 100'	SHEET	2 OF 2
CHECKED BY	(V) 1" = N/A	JOB NO.	1115.00	