

CITY OF ALBUQUERQUE



May 11, 2015

Krisinda Rapiejka, PE
Entitlement and Engineering Solutions, Inc.
518 17th Street Ste. 1575
Denver, Colorado 80202

**RE: DaVita Dialysis Center, 5207 San Mateo Blvd.
Grading and Drainage Plan
Plan Dated 4-20-15 for Sheets C2.0-C.2.2; Plan Dated 5-6-2015 for Sheet C5.0
(File: F17-D095A)**

Dear Ms. Rapiejka:

Based upon the information provided in your submittal received 5-07-15, the above referenced plans are approved for Building Permit. Please attach a copy of this approved plan in the construction sets when submitting for a building permit.

Prior to Certificate of Occupancy release, Engineer Certification per the DPM Checklist will be required.

If you have any questions, you can contact me at 924-3924.

Sincerely,

Jeanne Wolfenbarger, P.E.
Senior Engineer, Planning Dept.
Development Review Services

Orig: Drainage file
c.pdf Addressee via Email



City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: _____ Building Permit #: _____ City Drainage #: _____

DRB#: _____ EPC#: _____ Work Order#: _____

Legal Description: _____

City Address: _____

Engineering Firm: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Owner: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Architect: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Surveyor: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Contractor: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

TYPE OF SUBMITTAL:

- _____ DRAINAGE REPORT
- _____ DRAINAGE PLAN 1st SUBMITTAL
- _____ DRAINAGE PLAN RESUBMITTAL
- _____ CONCEPTUAL G & D PLAN
- _____ GRADING PLAN
- _____ EROSION & SEDIMENT CONTROL PLAN (ESC)
- _____ ENGINEER'S CERT (HYDROLOGY)
- _____ CLOMR/LOMR
- _____ TRAFFIC CIRCULATION LAYOUT (TCL)
- _____ ENGINEER'S CERT (TCL)
- _____ ENGINEER'S CERT (DRB SITE PLAN)
- _____ ENGINEER'S CERT (ESC)
- _____ SO-19
- _____ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

- _____ SIA/FINANCIAL GUARANTEE RELEASE
- _____ PRELIMINARY PLAT APPROVAL
- _____ S. DEV. PLAN FOR SUB'D APPROVAL
- _____ S. DEV. FOR BLDG. PERMIT APPROVAL
- _____ SECTOR PLAN APPROVAL
- _____ FINAL PLAT APPROVAL
- _____ CERTIFICATE OF OCCUPANCY (PERM)
- _____ CERTIFICATE OF OCCUPANCY (TCL TEMP)
- _____ FOUNDATION PERMIT APPROVAL
- _____ BUILDING PERMIT APPROVAL
- _____ GRADING PERMIT APPROVAL
- _____ PAVING PERMIT APPROVAL
- _____ WORK ORDER APPROVAL
- _____ GRADING CERTIFICATION
- _____ SO-19 APPROVAL
- _____ ESC PERMIT APPROVAL
- _____ ESC CERT. ACCEPTANCE
- _____ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED: _____ Yes _____ No _____ Copy Provided

DATE SUBMITTED: _____ By: _____

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location, and scope to the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres
3. **Drainage Report:** Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more
4. **Erosion and Sediment Control Plan:** Required for any new development and redevelopment site with 1-acre or more of land disturbing area, including project less than 1-acre than are part of a larger common plan of development

**EES****Entitlement and Engineering
Solutions, Inc**

Krisinda Rapiejko, P.E.
(for Amanda O'Connor, P.E.)
518 17th Street, Suite 1575
Denver, CO 80202

May 06, 2015

Jeanne Wolfenbarger, P.E.
City of Albuquerque
600 2nd Street NW, Ste. 201 (Ground Floor)
Albuquerque, NM 87102

Subject: **Del Norte Dialysis Center, 5207 San Mateo Blvd. NE**
Final Drainage Submittal Response
Project: F17-D095A

1. Please include all drainage calculations that you provided on 4/27/15. **This has been done. However there was a minor change to the required overall pond volume calculations. In the 4/27/15 email submittal for DRB I mistakenly did not include the entire tributary area for the basin GC3 as depicted on the Golden Corral Drainage Plan – the west Golden Corral parking area already tributary to the North Pond. In addition, I also did not expand the Basin GC1 to the full extents of the survey. I have made corrections to these basins and therefore the new required overall pond volume has been increased from 23,100 cf to 23,340 cf. The required overall pond volume still falls within the provided pond volume of 23,493 cf at the 5197.00 pond contour. This provides a 0.51 feet of freeboard depth to the emergency spillway elevation of 5197.5 (shown as 0.84' depth in 4/27/15 submittal). The 0.51' of freeboard falls within the original design intent of the North Pond to have 0.5' of freeboard as shown on the Arfman Detention Pond Plan. All associated calculations incorporating the enlarged GC1 and GC3 have been modified as well (see updated report, Excess Precipitation calcs, both hydrographs on drainage plan, and Design Pt 5 hydraulic calcs).**
2. On the Sheet C5.0, include your computed WSEL for the 100 year storm, the total volume provided for the storage pond, and the corresponding pond volume at the WSEL.
All information as described above is now shown on Sheet C5.0 in the text box titled Overall North Pond Storage at the top of the sheet.
3. Also, on Sheet C5.0, show all basins that contribute to the north pond which shall include all off-site storm water runoff from the Golden Corral parking lot. **Done. The offsite stormwater tributary to the North Pond is shown as GC3 and this basin was recreated using the Golden Corral Drainage Plan (see report appendix for this plan). Basin GC3 incorporates Basins DA No. 12 & 13 on the Golden Corral Plan.**

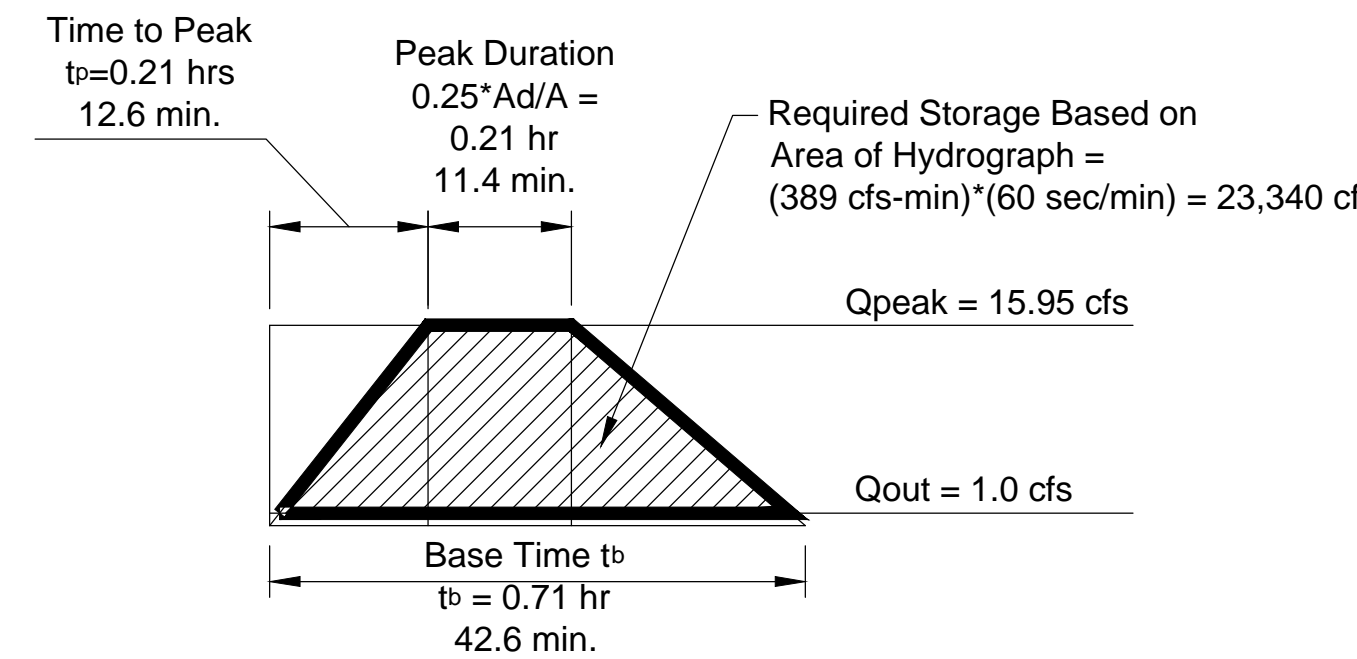
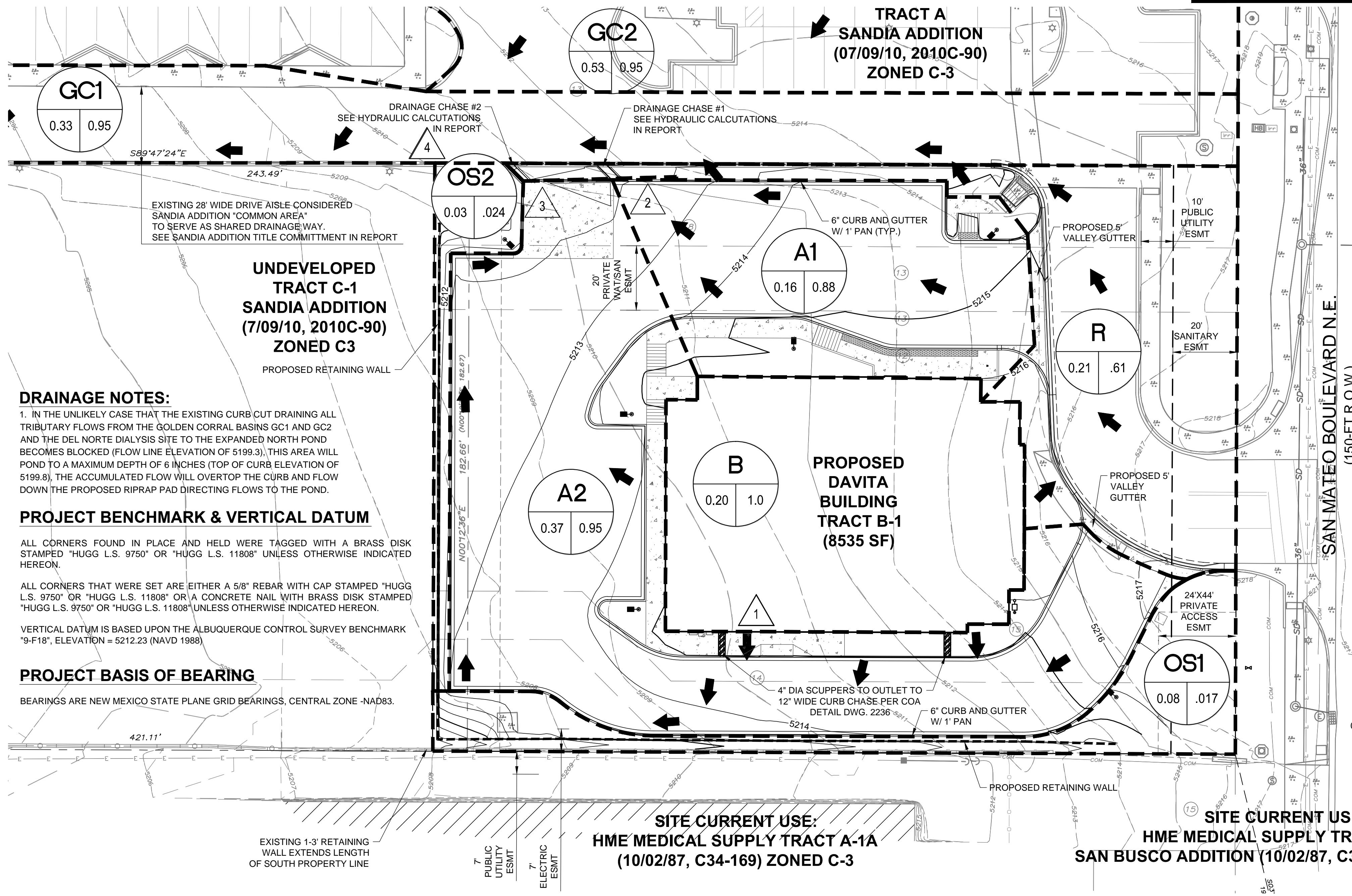
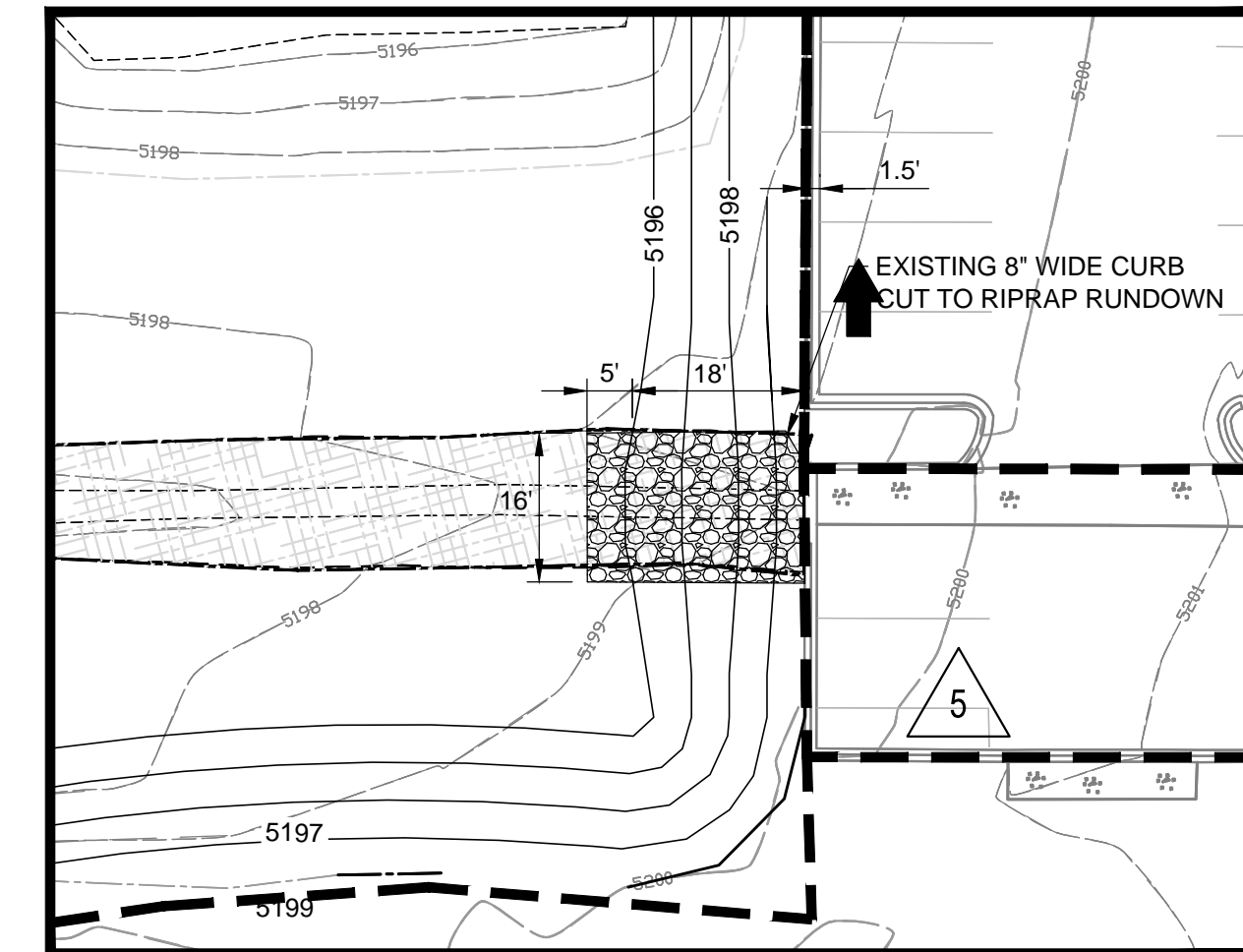
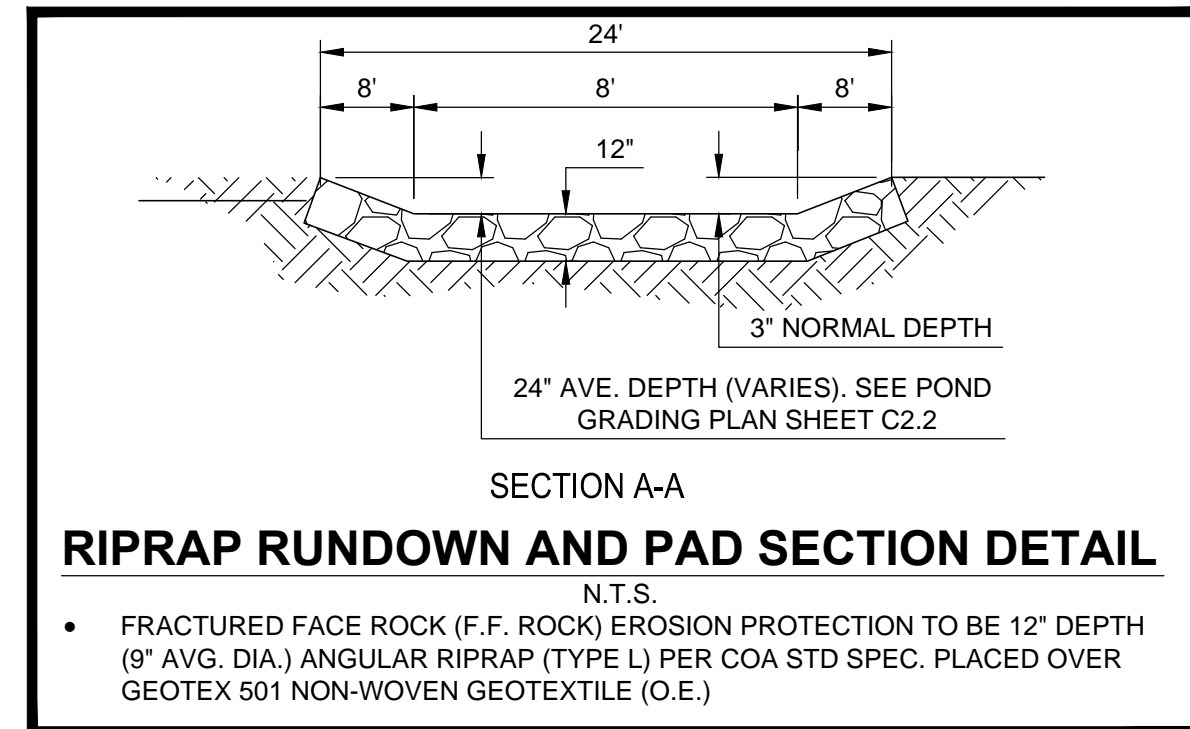
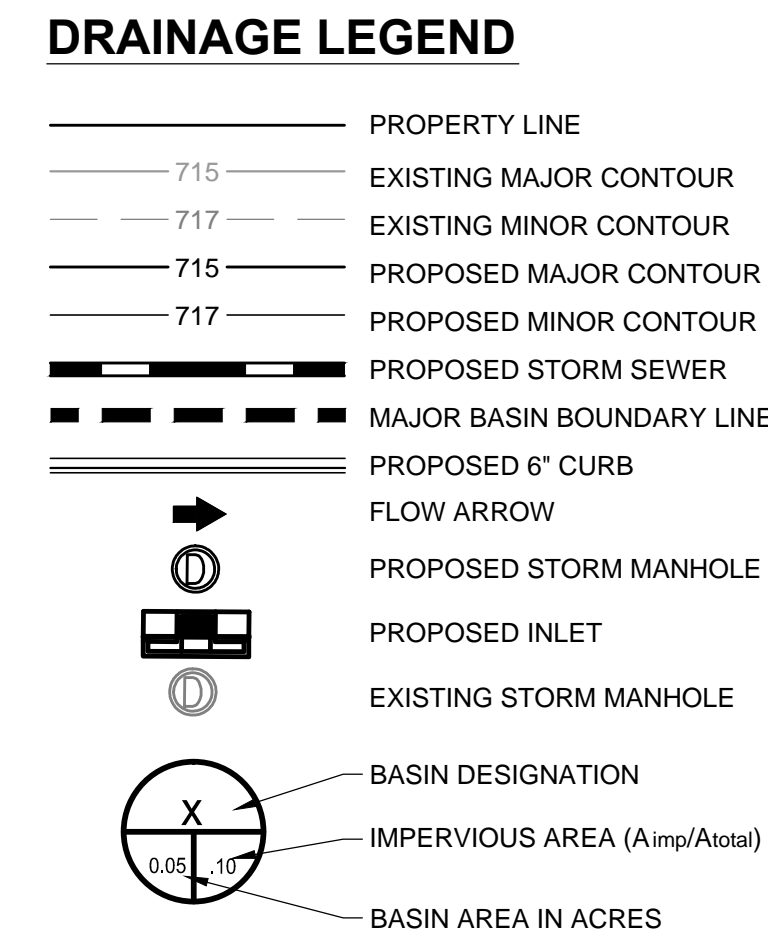
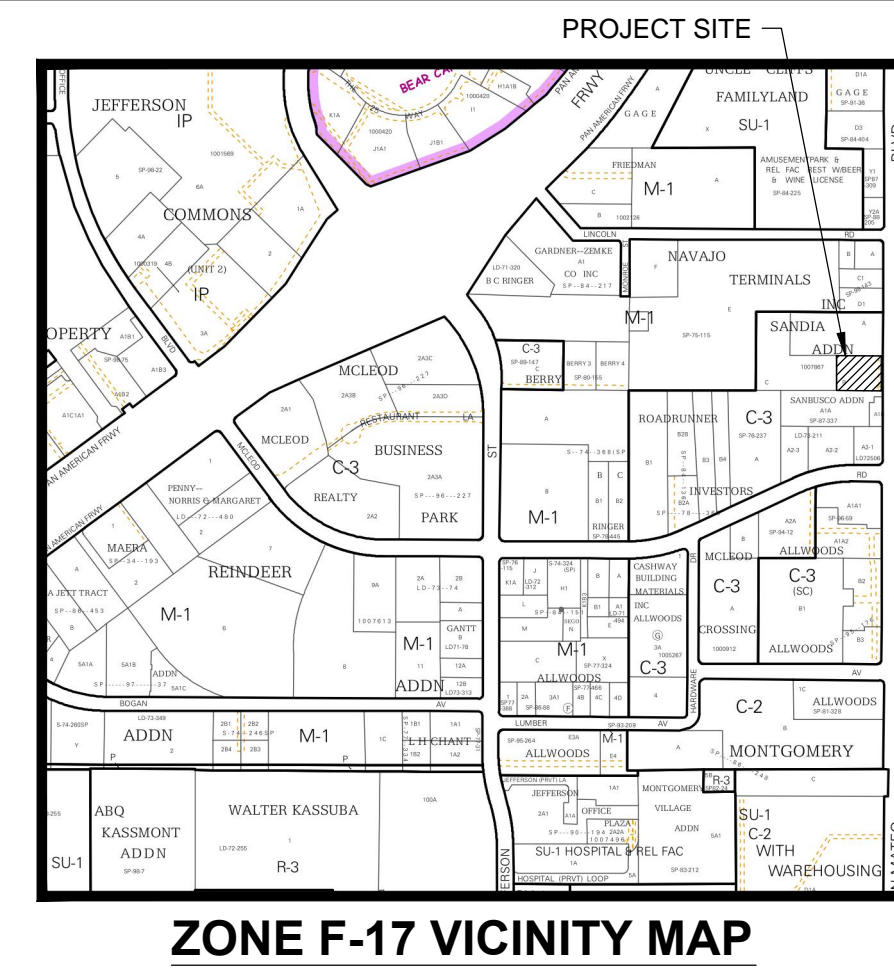
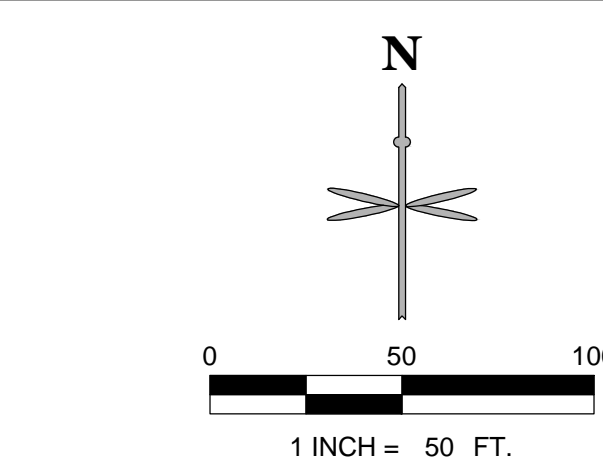
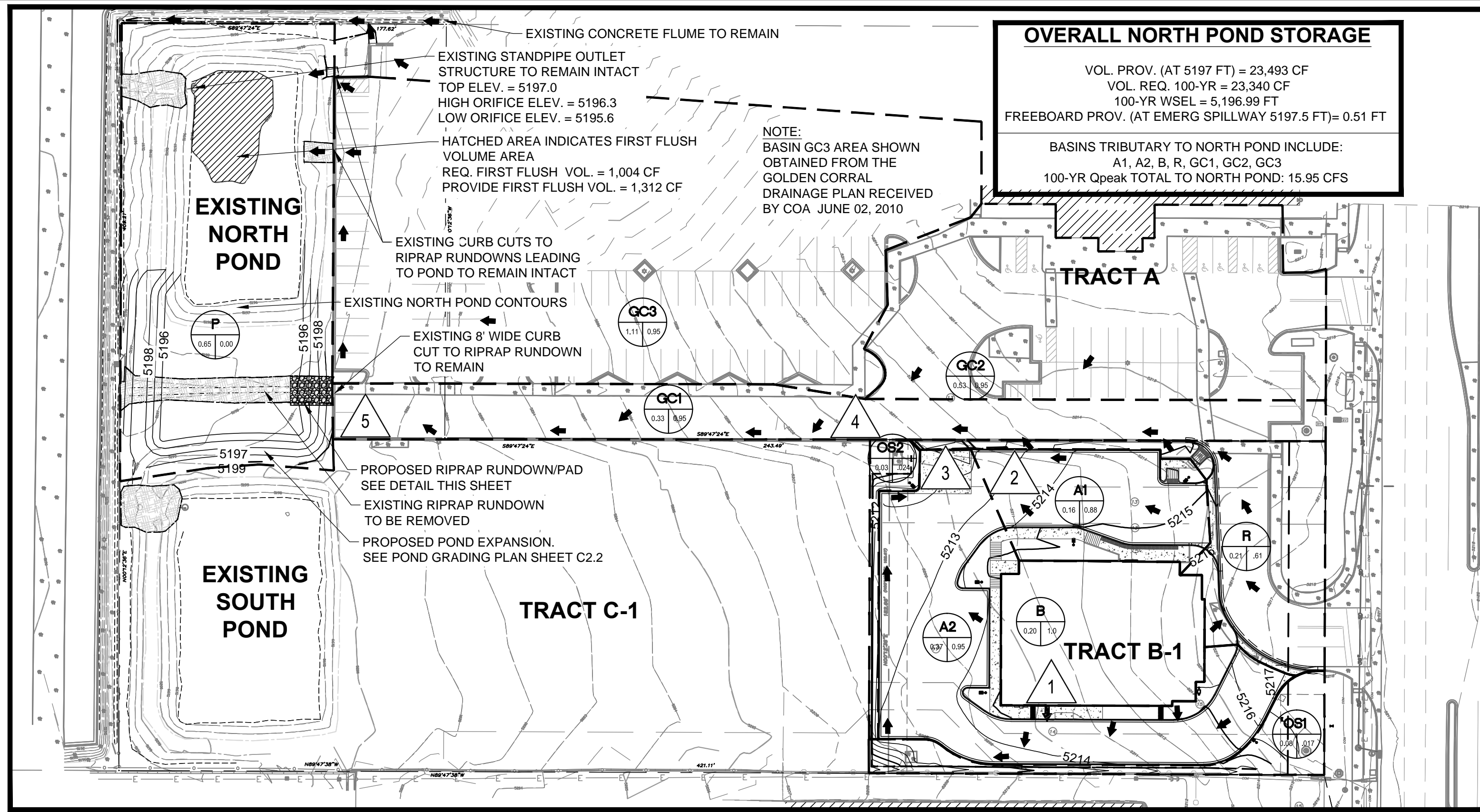
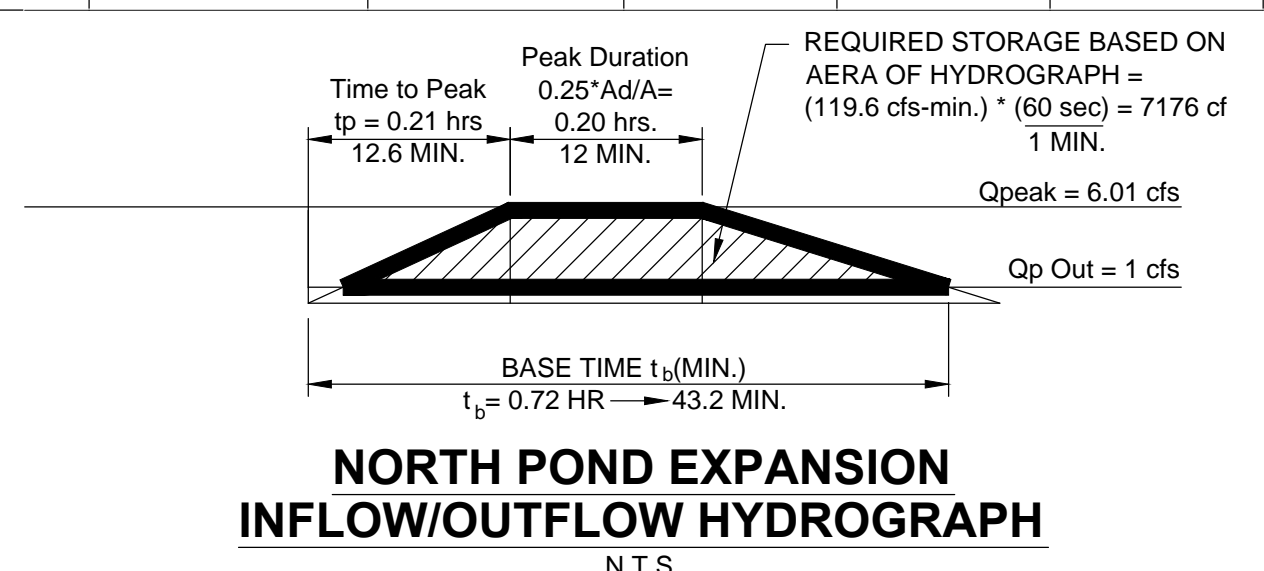


TABLE 1: BASIN SUMMARY RUNOFF TABLE SITE ANALYSIS					
BASIN	CONTRIBUTING BASIN ACREAGE	10-YR Q _{peak} (CFS)	100-YR Q _{peak} (CFS)	DESIGN POINT	DESIGN POINT COMM. FLOW 100-YR (cfs)
A1	0.16	0.46	0.70	2	0.70
A2	0.37	1.12	1.69	3	2.61
B	0.20	0.62	0.92	1	0.92
OS1	0.08	0.14	0.26	TRACT C-1	0.26
OS2	0.03	0.06	0.10	TRACT C-1	0.10
R	0.21	0.52	0.82	4	6.59
GC1	0.33	1.00	1.51	5	8.10
GC2	0.53	1.63	2.45	4	6.59
GC3	1.11	3.42	5.15	CURB CUTS	5.15
P	0.65	1.12	2.05	POND	15.95



NO.	DATE	REVISION
1	03/16/2015	BIDS & BUILDING PERMIT PLAN CHECK
2	04/20/2015	HYDROLOGY AND DBS COMMENTS
3	04/22/2015	BUILDING PERMIT COMM. RESPONSE
C	04/24/2015	ADDENDUM C
3	05/05/2015	HYDROLOGY FINAL COMMENTS

AMANDA M. O'CONNOR
Professional Engineer
5-6-2015

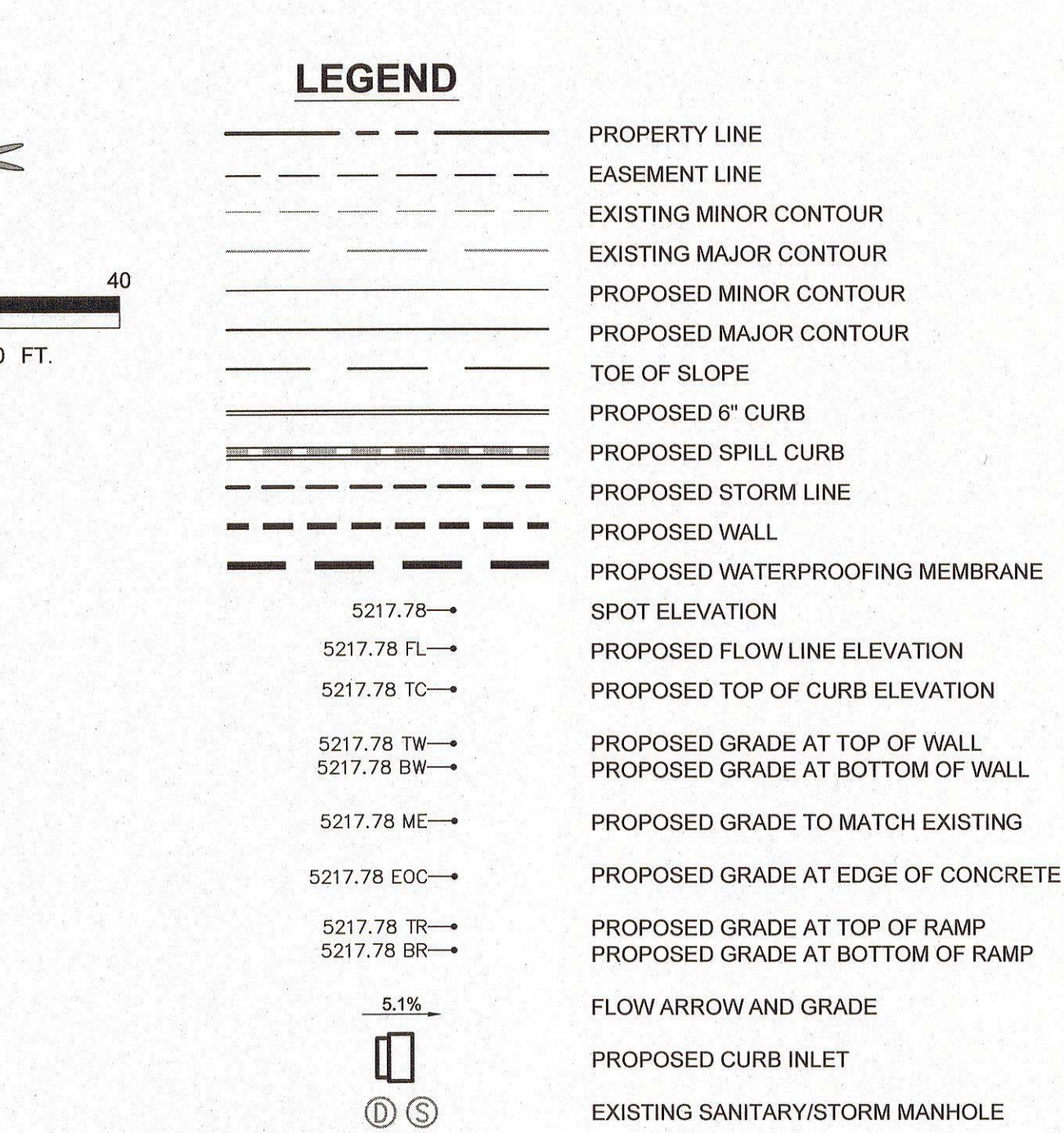
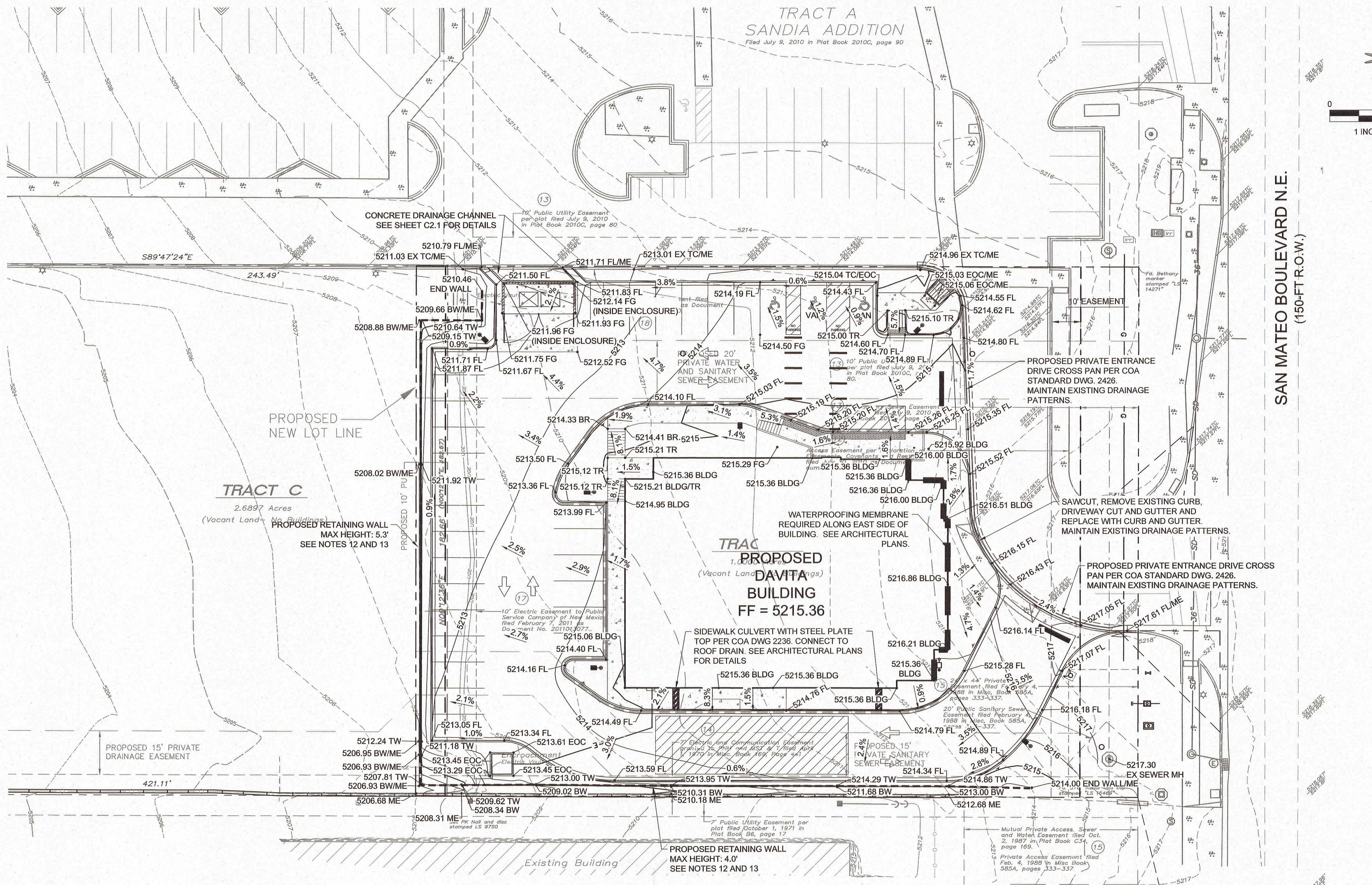
EES
& ENGINEERING SOLUTIONS, Inc.
1000 West 1st Street
Suite 1575
Denver, CO 80202
303.572.7997
FIRM NO. F-14751

Davita

CIVIL CONSTRUCTION DOCUMENTS
DEL NORTE DIALYSIS CENTER
5207 San Mateo Boulevard N.E.
DRAINAGE AREA PLAN

PROJECT NO: DAV003.01
DESIGNED BY: KLR
DRAWN BY: KLR
DATE: 03/10/15

C5.0
SHEET 9 OF 12



- GENERAL NOTES**
1. REQUIREMENTS SHOWN ON THE SITE PLAN SHALL GOVERN. DRAWINGS AND SPECIFICATIONS SHOWING OTHERWISE NOTWITHSTANDING. CONTRACTOR TO POINT OUT ANY DISCREPANCIES TO THE OWNERS REPRESENTATIVE PRIOR TO BID.
 2. NO WORK IS TO BEGIN UNTIL ALL PERMITS HAVE BEEN OBTAINED.
 3. FINAL GRADES ARE SUBJECT TO MINOR CHANGE BY CONTRACTOR. NO GRADE CHANGES IN EXCESS OF 0.05' WITHOUT ENGINEER APPROVAL.
 4. ANY FILL MATERIAL REQUIRED TO BRING THE SITE TO GRADE SHALL BE CLEAN FILL APPROVED BY GEOTECHNICAL ENGINEER. SEE "NOTES FOR SOIL PREPARATION", THIS SHEET.
 5. ALL LANDSCAPING AREAS SHALL BE GRADED 0.10' WITH COMPANY APPROVED SOIL.
 6. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR MINIMIZING DEPOSITION OF ONSITE SEDIMENTS ONTO SURROUNDING PUBLIC STREETS DURING CONSTRUCTION.
 7. SEE THE SITE SURVEY FOR SURVEY INFORMATION AND LEGAL DESCRIPTION.
 8. GRADES SHOWN ARE FLOWLINE UNLESS OTHERWISE NOTED.
 9. GUTTER GRADES SHALL BE A MINIMUM 0.6%.
 10. ADA SIDEWALK AND PARKING STALLS SHALL COMPLY WITH CITY OF ALBUQUERQUE STANDARDS AND SPECIFICATIONS.
 11. THE PROPOSED STORM DRAINAGE IS DESIGNED FOR THE 100-YEAR STORM EVENT. IN THE EVENT THE CURB OPENINGS BECOME COMPLETELY CLOGGED, RUNOFF WILL POND WITHIN THE PARKING AREA AT THE LOWEST POINT LOCATED IN THE NORTHWEST CORNER OF THE SITE FOR A DEPTH OF 6", WHERE IT WILL OVERTOP THE CURB, AND SHEET FLOW DOWN THE LANDSCAPE AREA IN A NORTHERLY DIRECTION AND OVER THE EXISTING CURB AND GUTTER ALONG THE SOUTH EDGE OF THE ADJACENT SHARED ACCESS ROAD. STORM FLOW WILL CONTINUE IN THE EXISTING CURB AND GUTTER AND BE CARRIED TO THE NORTH POND. THIS POND HAS BEEN REGRADED TO ACCOMMODATE ONSITE FLOWS REQUIRED FOR DETENTION AND FIRST FLUSH VOLUMES. REFER TO DRAINAGE REPORT UNDER SEPARATE COVER.
 12. REFER TO C1.0 (OVERALL SITE PLAN) FOR SPECIFIC WALL MATERIAL AND TYPE.
 13. REFER TO C1.1 FOR WALL HORIZONTAL CONTROL AND SPECIFIC RETAINING WALL DETAIL REQUIREMENTS.
 14. REFER TO C2.2 FOR NORTH POND GRADING PLAN

SOIL PREPARATION NOTE

SOIL PREPARATION FOR NON-LANDSCAPE AREAS SHALL BE PER RECOMMENDATIONS FROM A GEOTECHNICAL REPORT PREPARED FOR THIS SITE AS FOLLOWS:

GEOTECHNICAL ENGINEER: TERRACON CONSULTANTS, INC.
PROJECT NO.: 66145088, DATED JANUARY 9TH 2015

THE CONTRACTOR MUST FULLY REVIEW THIS REPORT PRIOR TO CONSTRUCTION. INFORMATION IN THE GEOTECHNICAL REPORT SUPERSEDES ANY CONFLICTING INFORMATION CONTAINED IN THE CONSTRUCTION PLANS AND SPECIFICATIONS. REFER TO GENERAL STRUCTURAL NOTES FOR SPECIFIC SOIL PREPARATION AT SITE STRUCTURES. REFER TO THE LANDSCAPE PLANS FOR SPECIFIC PLANTING AREA SOIL AMENDMENT PROCEDURES.

PROJECT BENCHMARK & VERTICAL DATUM

ALL CORNERS FOUND IN PLACE AND HELD WERE TAGGED WITH A BRASS DISK STAMPED "HUGG L.S. 9750" OR "HUGG L.S. 11808" UNLESS OTHERWISE INDICATED HEREON.

ALL CORNERS THAT WERE SET ARE EITHER A 5/8" REBAR WITH CAP STAMPED "HUGG L.S. 9750" OR "HUGG L.S. 11808" OR A CONCRETE NAIL WITH BRASS DISK STAMPED "HUGG L.S. 9750" OR "HUGG L.S. 11808" UNLESS OTHERWISE INDICATED HEREON.

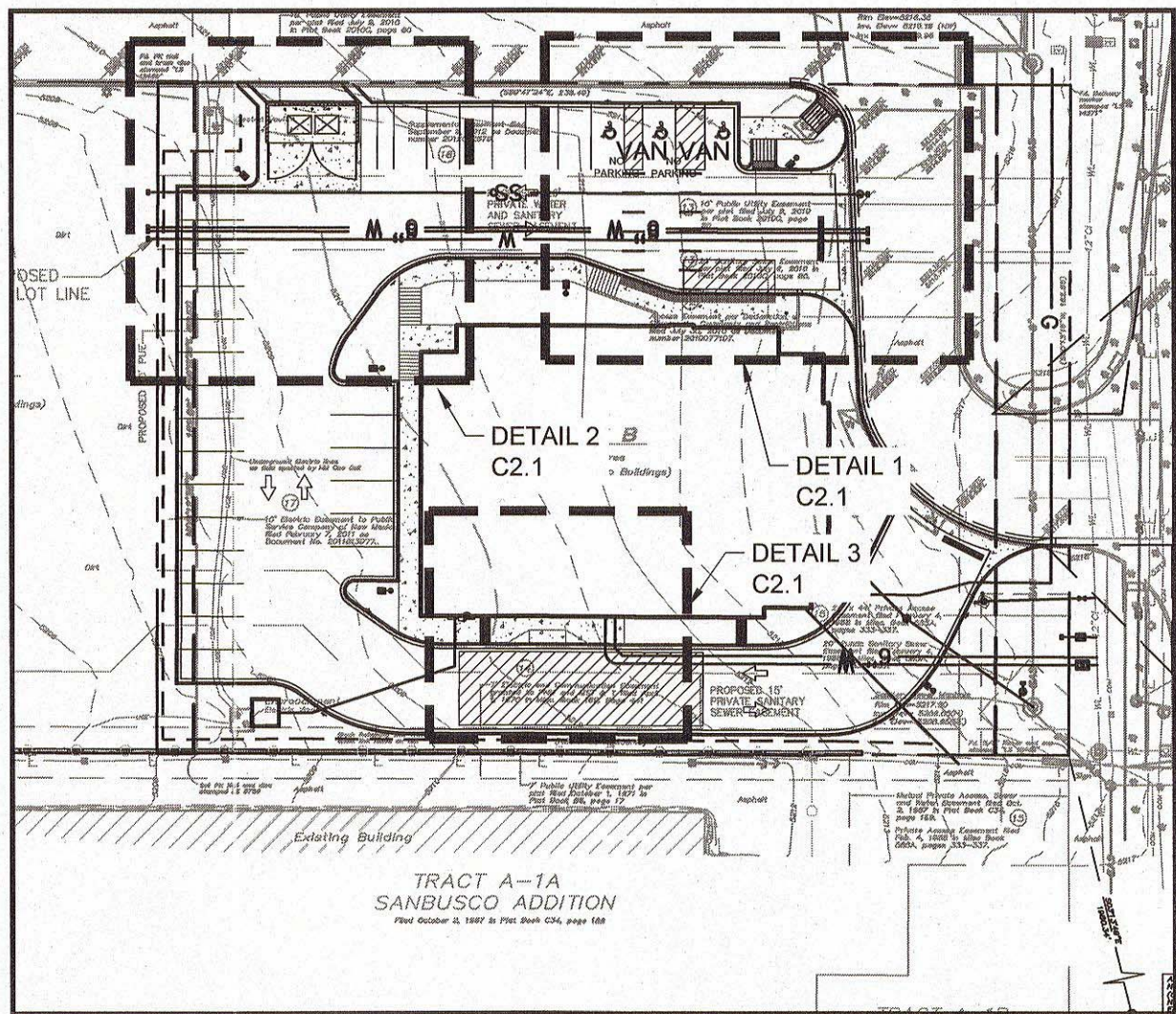
VERTICAL DATUM IS BASED UPON THE ALBUQUERQUE CONTROL SURVEY BENCHMARK "9-F18", ELEVATION = 5212.23 (NAVD 1988)

PROJECT BASIS OF BEARING

BEARINGS ARE NEW MEXICO STATE PLANE GRID BEARINGS, CENTRAL ZONE -NAD83.

LEGAL DESCRIPTION

TRACT LETTERED "B" OF THE PLAT OF TRACTS A, B, & C, SANDIA ADDITION, ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO, FEBRUARY 2010, AS THE SAME IS SHOWN AND DESIGNATED ON SAID PLAT FILED FOR RECORD ON JULY 9, 2010 AND RECORDED AS DOCUMENT #2010068217 IN THE RECORDS OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO



NO.	REVISION	BY	DATE
1	BIDS & BUILDING PERMIT PLAN CHECK		03/10/2015
2	HYDROLOGY & DRG COMMENTS		04/20/2015

EES
ENGINEERING & CONSULTANTS, INC.
518 17th Street
Suite 1570, Bldg. 8000
www.ees-us.com
303-572-7997
FIRM NO. F-4751

CIVIL CONSTRUCTION DOCUMENTS

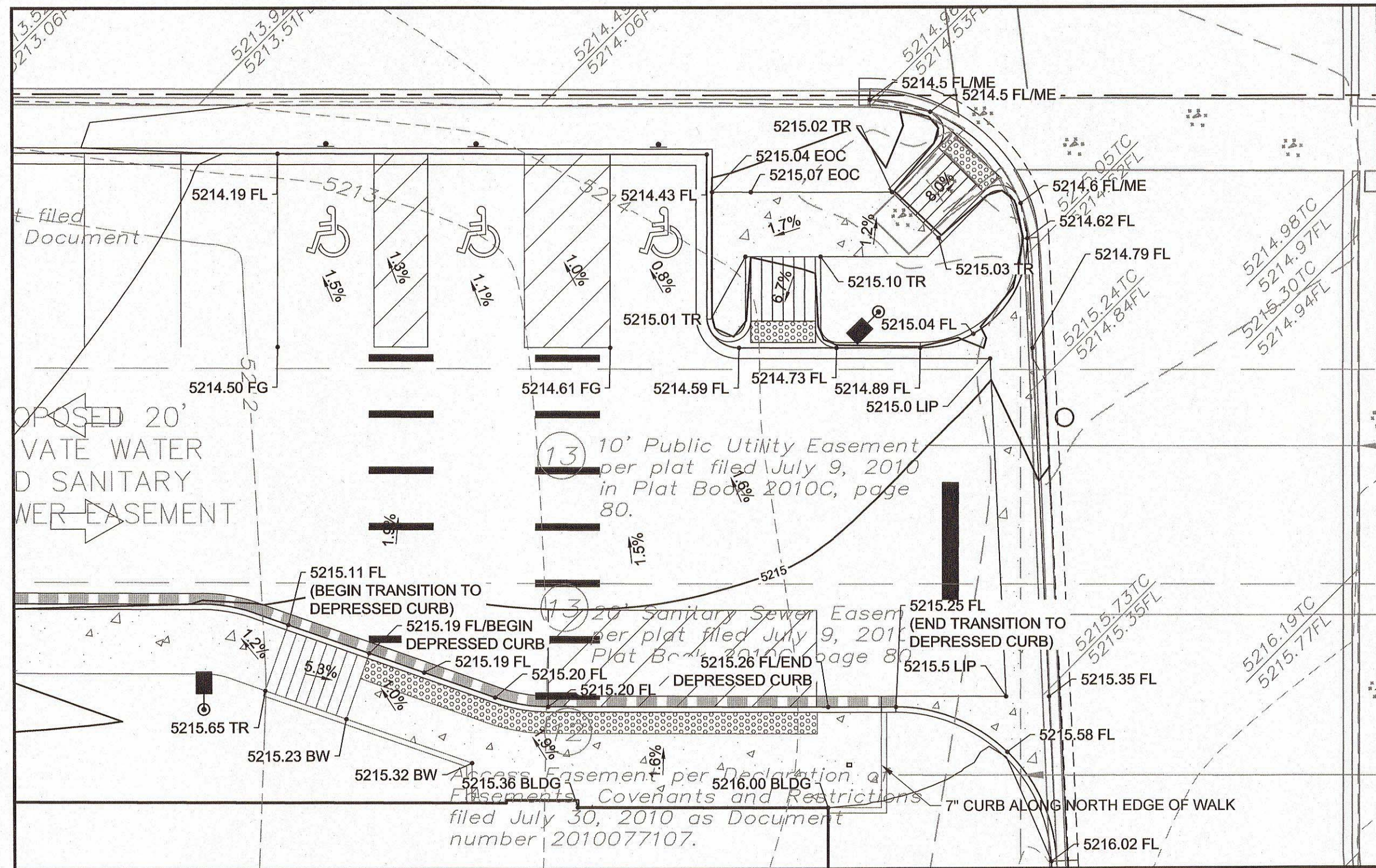
DEL NORTE DIALYSIS CENTER

5207 San Mateo Boulevard N.E.

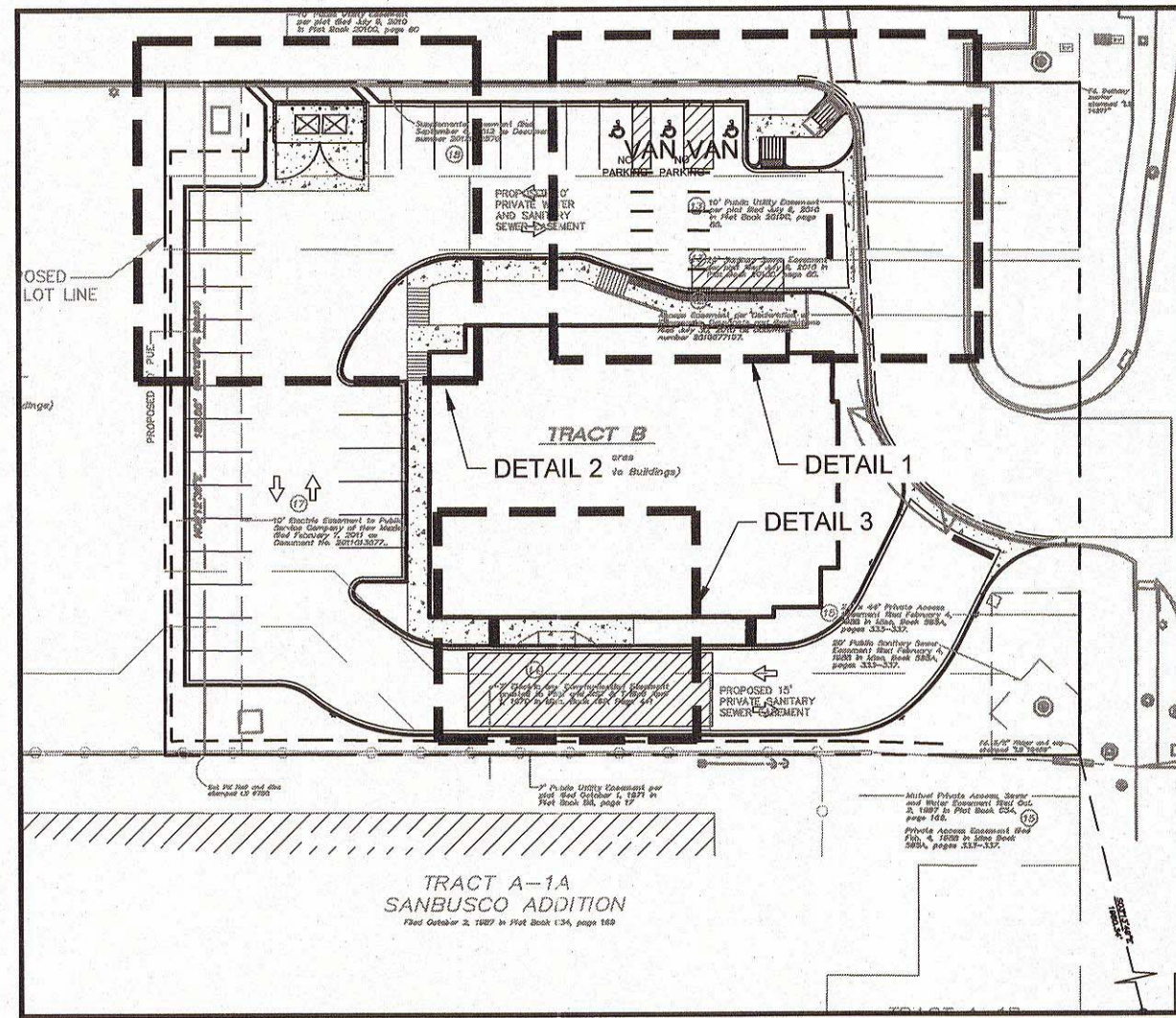
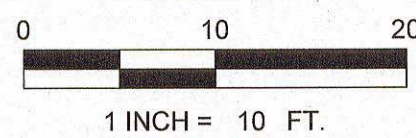
GRADING PLAN

PROJECT NO.: DAV003.01
DESIGNED BY: JRR
DRAWN BY: KLR
DATE: 03/10/15

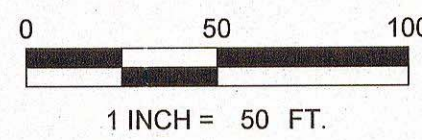
C2.0
SHEET 4 OF 12



DETAIL 1

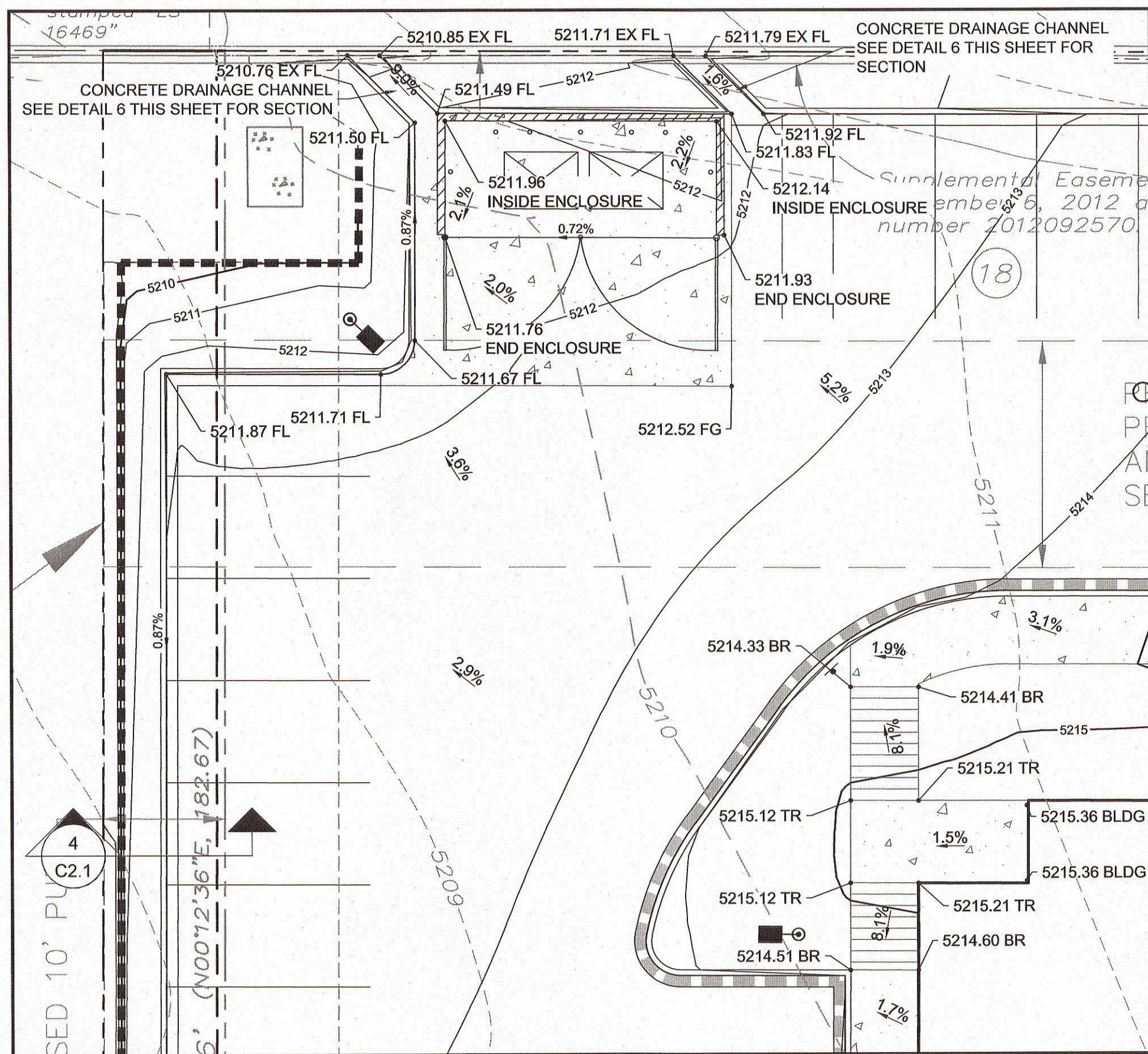


KEY MAP

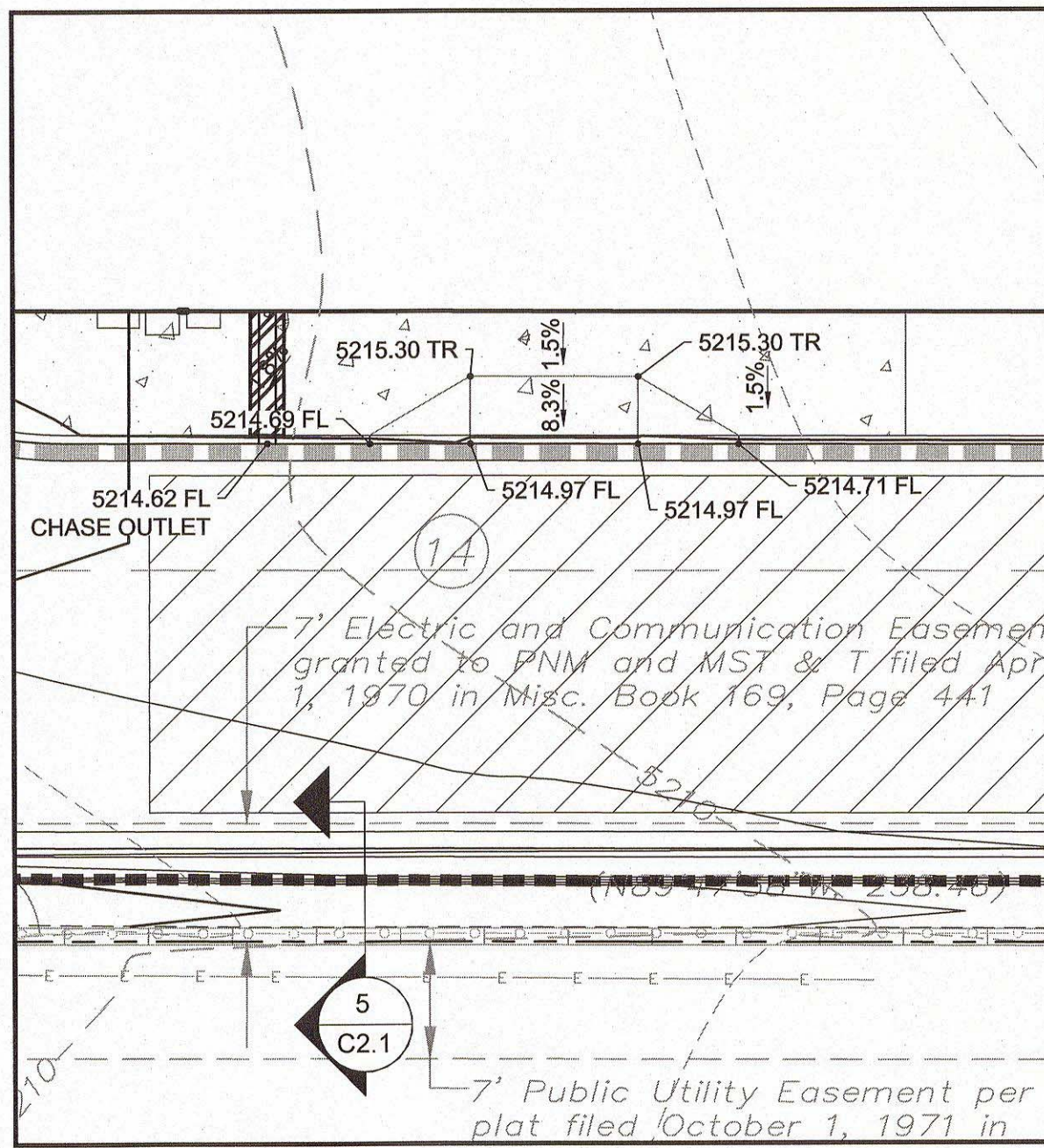
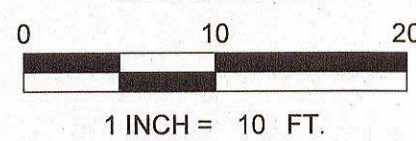


LEGEND

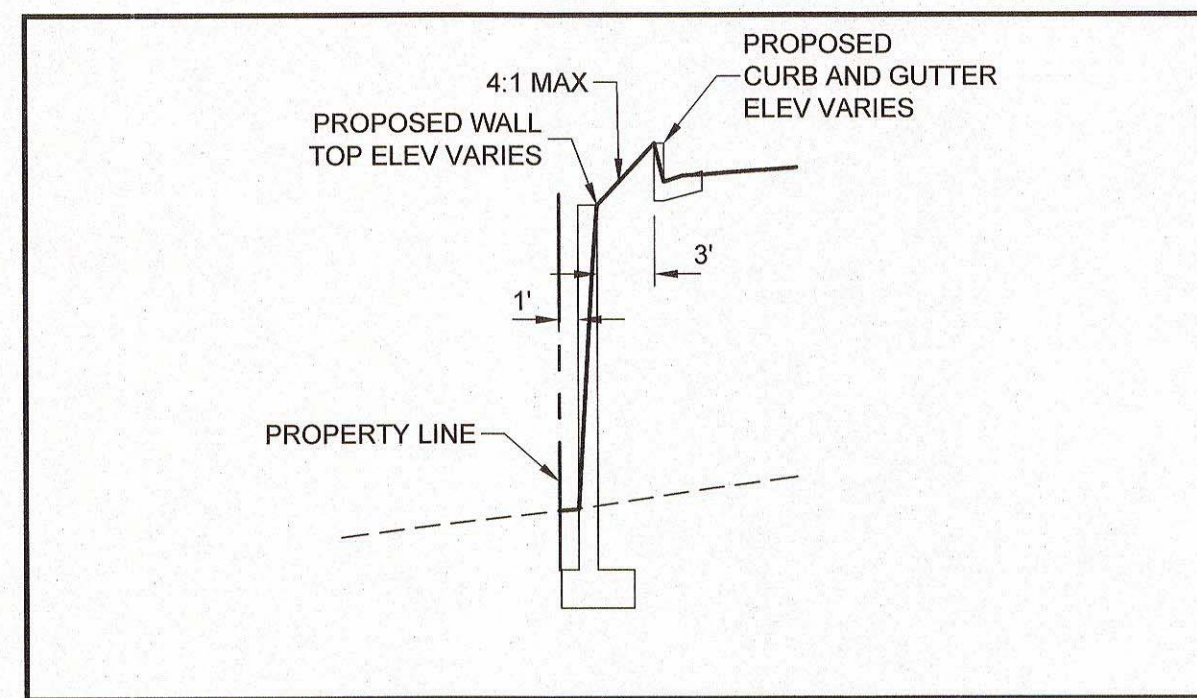
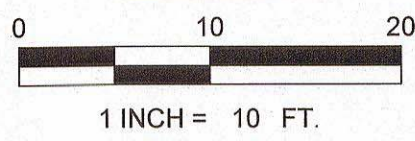
- PROPERTY LINE
- EASEMENT LINE
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- TOE OF SLOPE
- PROPOSED DRY CURB AND GUTTER
- PROPOSED STORM LINE
- SPOT ELEVATION
- PROPOSED FLOW LINE ELEVATION
- PROPOSED TOP OF CURB ELEVATION
- PROPOSED GRADE AT EDGE OF CONCRETE
- FLOW ARROW AND GRADE



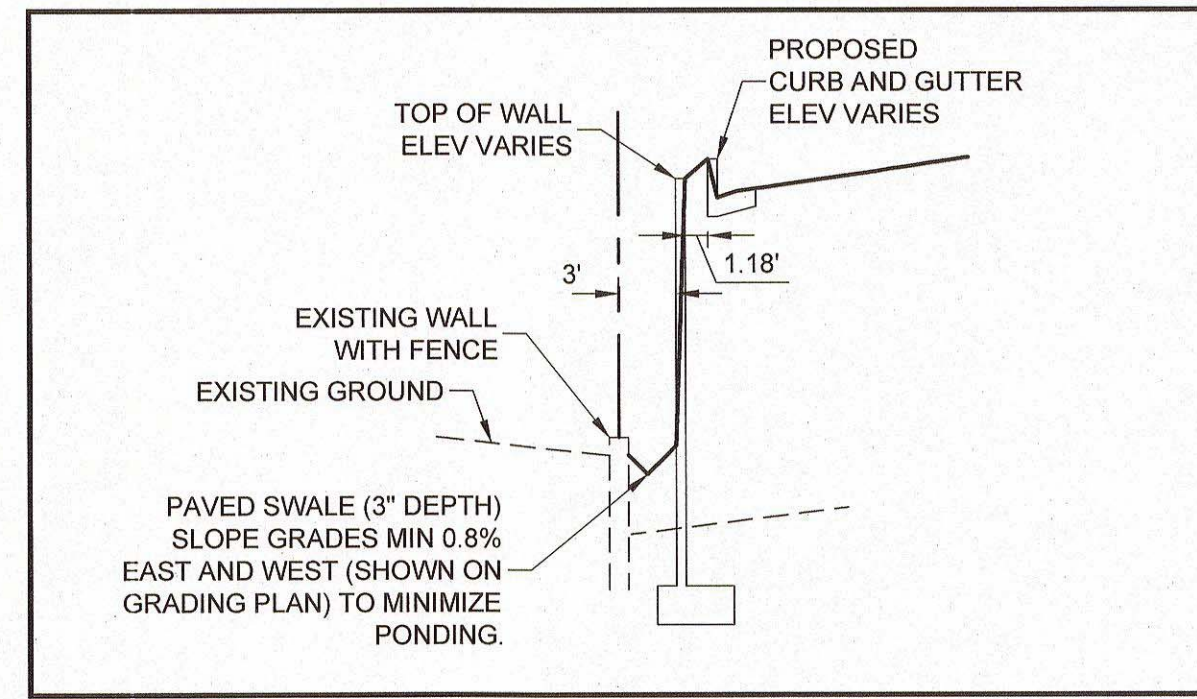
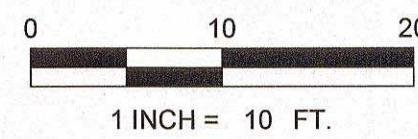
DETAIL 2



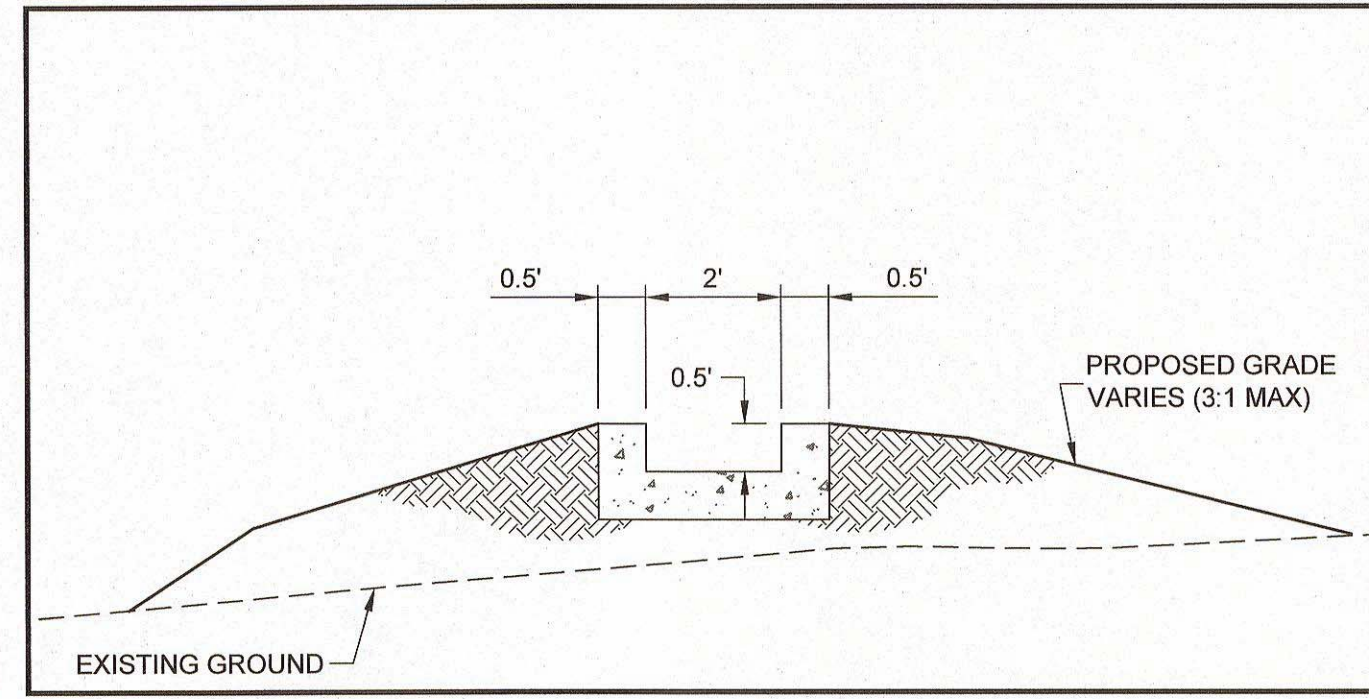
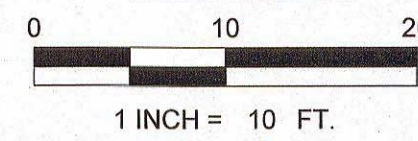
DETAIL 3



DETAIL 4



DETAIL 5



DETAIL 6

NTS

CIVIL CONSTRUCTION DOCUMENTS

DEL NORTE DIALYSIS CENTER

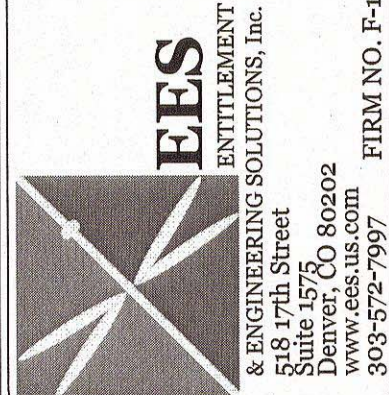
5207 San Mateo Boulevard N.E.

GRADING ENLARGEMENT PLAN

PROJECT NO: DAV003.01
DESIGNED BY: JRR
DRAWN BY: KLR
DATE: 04/20/15

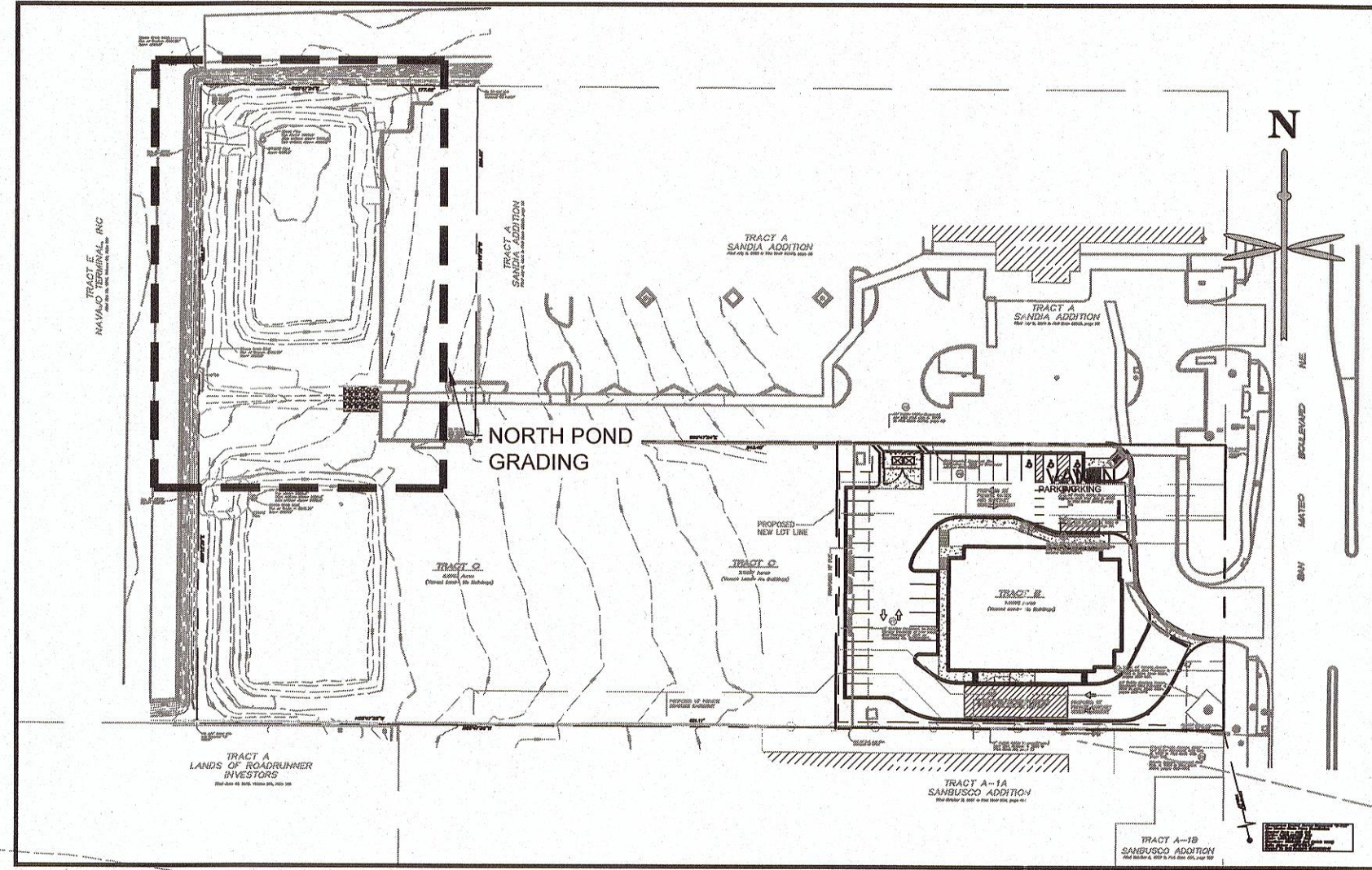
C2.1

SHEET 5 OF 12



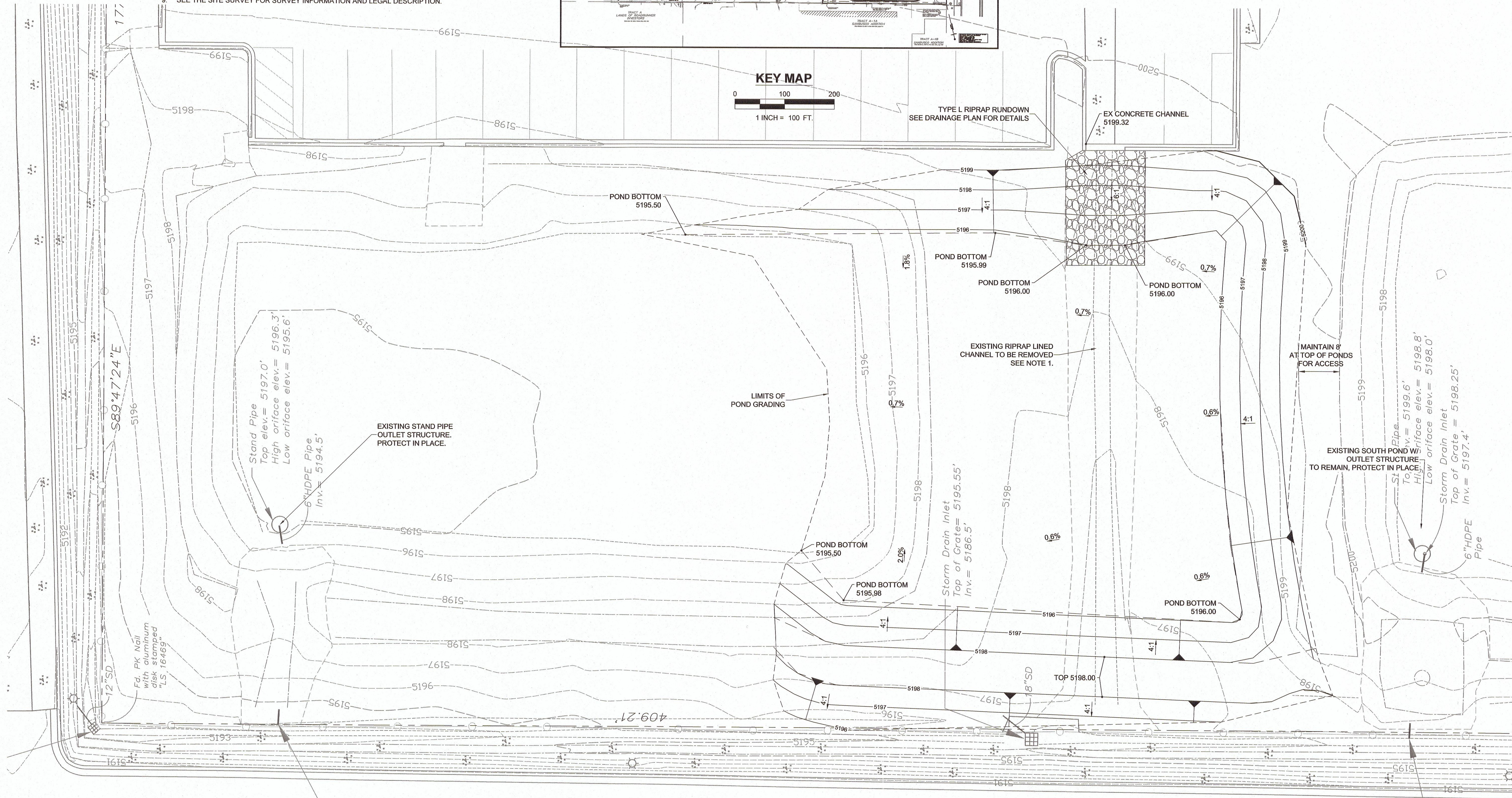
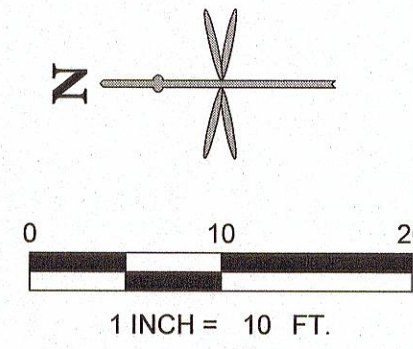
GENERAL NOTES

- EXISTING RIPRAP CHANNEL TO BE REMOVED TO ACCOMMODATE POND EXPANSION. IF SALVAGEABLE, EXISTING RIPRAP FROM CHANNEL TO BE REUSED WHERE RIPRAP IS REQUIRED PER THE PLAN.
- REFER TO DRAINAGE PLAN FOR SPECIFIC POND DESIGN.
- POND OUTLET STRUCTURE TO REMAIN IN PLACE AND PROTECTED FROM DAMAGE OR SEDIMENTATION DURING CONSTRUCTION. REFER TO EROSION CONTROL PLANS FOR EROSION CONTROL DETAILS.
- REQUIREMENTS SHOWN ON THE SITE PLAN SHALL GOVERN. DRAWINGS AND SPECIFICATIONS SHOWING OTHERWISE NOTWITHSTANDING, CONTRACTOR TO POINT OUT ANY DISCREPANCIES TO THE OWNERS REPRESENTATIVE PRIOR TO BID.
- NO WORK IS TO BEGIN UNTIL ALL PERMITS HAVE BEEN OBTAINED.
- FINAL GRADES ARE SUBJECT TO MINOR CHANGE BY CONTRACTOR. NO GRADE CHANGES IN EXCESS OF 0.05' WITHOUT ENGINEER APPROVAL.
- ALL LANDSCAPING AREAS SHALL BE GRADED 0.10' WITH COMPANY APPROVED SOIL.
- GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR MINIMIZING DEPOSITION OF ONSITE SEDIMENTS ONTO SURROUNDING PUBLIC STREETS DURING CONSTRUCTION.
- SEE THE SITE SURVEY FOR SURVEY INFORMATION AND LEGAL DESCRIPTION.



LEGEND

- PROPERTY LINE
- EASEMENT LINE
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- TOE/TOP OF SLOPE
- GRADING LIMITS
- PROPOSED DRY CURB AND GUTTER
- PROPOSED STORM LINE
- SPOT ELEVATION
- PROPOSED FLOW LINE ELEVATION
- PROPOSED TOP OF CURB ELEVATION
- PROPOSED GRADE AT EDGE OF CONCRETE
- FLOW ARROW AND GRADE



CIVIL CONSTRUCTION DOCUMENTS

DEL NORTE DIALYSIS CENTER

5207 San Mateo Boulevard N.E.

POND GRADING PLAN

PROJECT NO: DAV003.01

DESIGNED BY: JRR

DRAWN BY: KR

DATE: 03/10/15

C2.2

SHEET 6 OF 12

REVISION

No.	REVISION	DATE
1	BIDS AND BUILDING PERMIT PLAN CHECK	03/16/15
2	HYDROLOGY & DRB COMMENTS	04/20/15

BY

AMO

AMO

AMANDA M. O'CONNOR

PROFESSIONAL ENGINEER

10001

EES

ENGINEERING SOLUTIONS, Inc.

515 17th Street

Denver, CO 80202

www.ees.us.com

303.572.7997

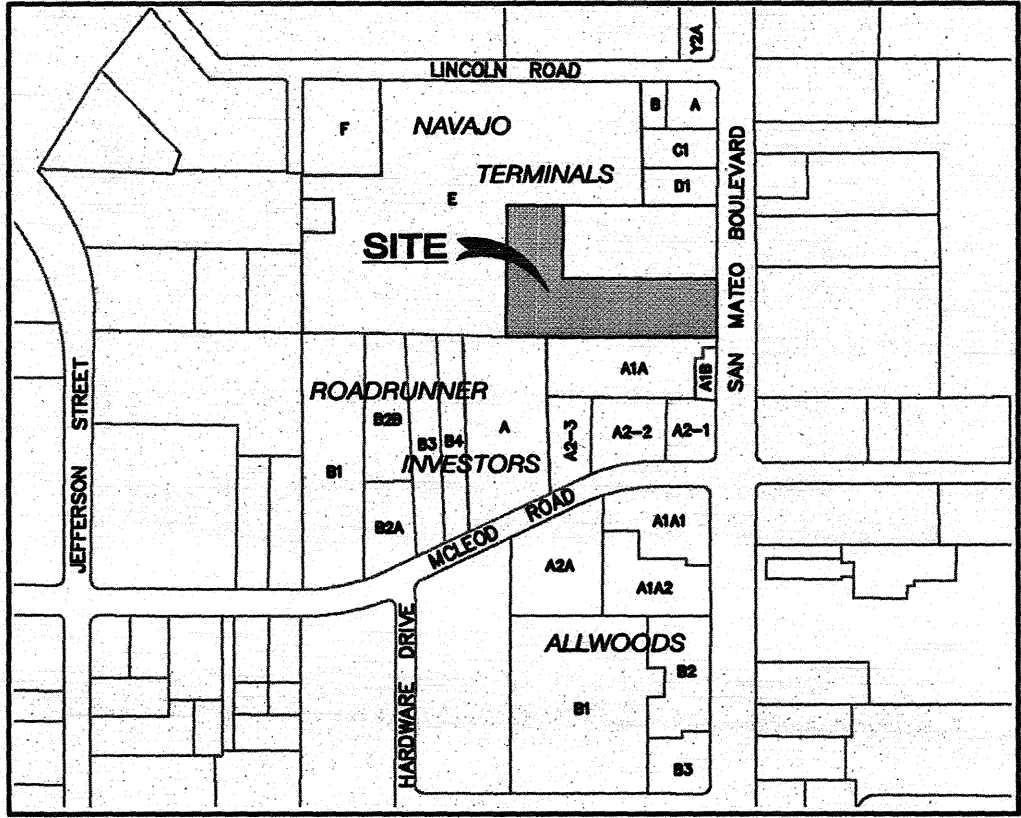
FIRM NO. F-4751

Davita.

AMANDA M. O'CONNOR

PROFESSIONAL ENGINEER

10001



LOCATION MAP
NOT TO SCALE

SUBDIVISION DATA

1. DRB No.
2. Zone Atlas Index No. F-17.
3. Zoning: C-3.
4. Gross Subdivision Acreage: 3.6897 Acres.
5. Total number of tracts Created: Two (2) Tracts.
6. No public street right-of-way is created.
7. Date of Survey: December, 2009.
8. Plat is located within the Elena Gallegos Grant, projected Section 35, Township 11 North, Range 3 East, New Mexico Principal Meridian, Bernalillo County, New Mexico.

PURPOSE OF PLAT

The purpose of this Plat is to relocate tract lines common to Tracts B and C, Plat of Tracts A, B & C, Sandia Addition, as the same is shown and designated on the plat thereof, filed in the office of the County Clerk of Bernalillo County, New Mexico on July 9, 2010 in Book 2010C, Page 0080 as Document No.2010068217 and to grant Easements and vacate Private Easements.

PUBLIC UTILITY EASEMENTS

PUBLIC UTILITY EASEMENTS shown on this plat are granted for the common and joint use of:

- A. Public Service Company of New Mexico ("PNM"), a New Mexico corporation, (PNM Electric) for installation, maintenance, and service of overhead and underground electrical lines, transformers, and other equipment and related facilities reasonably necessary to provide electrical services.
- B. New Mexico Gas Company for installation, maintenance, and service of natural gas lines, valves and other equipment and facilities reasonably necessary to provide natural gas services.
- C. Qwest Corporation d/b/a CenturyLink QC for the installation, maintenance, and service of such lines, cable, and other related equipment and facilities reasonably necessary to provide communication services.
- D. Cable One for the installation, maintenance, and service of such lines, cable; and other related equipment and facilities reasonably necessary to provide Cable services.

Included, is the right to build, rebuild, construct, reconstruct, locate, relocate within the easement, change, remove, replace, modify, renew, operate and maintain facilities for purposes described above, together with free access to, from, and over said easements, with the right and privilege of going upon, over and across adjoining lands of Grantor for the purposes set forth herein and with the right to utilize the right of way and easement to extend services to customers of Grantee, including sufficient working area space for electric transformers, with the right and privilege to trim and remove trees, shrubs or bushes which interfere with the purposes set forth herein. No building, sign, pool (aboveground or subsurface), hot tub, concrete or wood pool decking, or other structure shall be erected or constructed on said easements, nor shall any well be drilled or operated thereon. Property owners shall be solely responsible for correcting any violations of National Electrical Safety Code by construction of pools, decking, or any structures adjacent to or near easements shown on this plat.

Easements for electric transformer/switchgears, as installed, shall extend ten (10) feet in front of transformer/switchgear doors and five (5) feet on each side.

Disclaimer

In approving this plat, Public Service Company of New Mexico (PNM), New Mexico Gas Company (NMGC) and Qwest Corporation D/B/A CenturyLink (QWEST) did not conduct a Title Search of the properties shown hereon. Consequently, PNM, NMGC and QWEST do not waive or release any easement or easement rights which may have been granted by prior plat, replat or other document and which are not specifically described and shown on this plat.

The City of Albuquerque and its designees and/or contractors may install, maintain and service water and wastewater lines within the 10' PUE.

DESCRIPTION

A certain tract of land located within the Elena Gallegos Grant, City of Albuquerque, Bernalillo County, New Mexico, being and comprising all of of Tracts "B" & "C", Plat of Tracts A, B & C, Sandia Addition, as the same is shown and designated on the plat thereof, filed in the office of the County Clerk of Bernalillo County, New Mexico on July 9, 2010 in Book 2010C, Page 0080 as Document No. 2010068217.

Tract contains 3.6897 acres of land, more or less.

FREE CONSENT

The plat shown hereon is made with free consent and in accordance of the desires of the undersigned owner(s), the execution of this plat is their free act and deed. Those signing as owner(s) warrant that they hold among them, complete indefeasible title in fee simple to the land shown on this plat. Owner(s) hereby affirm that the described property shown on this plat lies within the platting and subdivision jurisdiction of Albuquerque, New Mexico. Said owner(s) hereby grant all Easements as may shown on this plat.

Sandia Foundation
SBMK Property Company, LLC
By: *Robert M. Goodman*
Robert M. Goodman
Manager, SBMK Property Company, LLC
Pres., Sandia Foundation

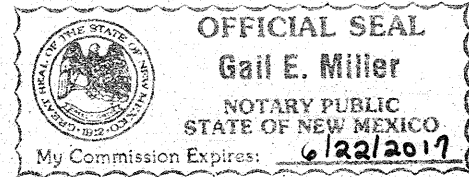
State of New Mexico)
SS
County of Bernalillo)

This instrument was acknowledged before me on 24th day of February, 2015, by

Robert M. Goodman

My Commission Expires: 6/22/2017

Gail E. Miller
Notary Public



NOTES

1. Bearings are New Mexico State Plane Grid Bearings (Central Zone) NAD 1983 and the basis of bearings is the inverse between city of Albuquerque Control Monuments "9-F18" and "1-F18A". Bearing = N30°55'08"E.
2. Record Bearings and distances are the same as as shown on this plat and the same as shown on Plat of Tracts A, B & C, Sandia Addition, filed in the office of the County Clerk of Bernalillo County, New Mexico on July 9, 2010 in Book 2010C, Page 0080 as Document No.2010068217.
3. Distances are ground distances.
4. Pursuant to section 14-14-4-7 of the City of Albuquerque Code of Ordinances, "No property within the area of this Plat shall at anytime be subject to a deed restriction, covenant, or binding agreement prohibiting solar collectors from being installed on buildings or erected on the tracts within the area of proposed plat. The foregoing requirements shall be a condition to approval of this plat."
5. An existing private reciprocal blanket pedestrian, private parking, vehicular access, and drainage easement granted to and maintained by Tracts A, B and C as the same is shown and designated on the Plat of Tracts A, B & C, Sandia Addition filed in the office of the County Clerk of Bernalillo County, New Mexico on July 9, 2010 in Book 2010C, Page 0080 as Document No. 2010068217.
6. Tracts A, B, and C are subject to a Mutual Parking Agreement filed April 4, 1988 in Misc. Bk 607A, page 187 as Document No. 8830247, records of Bernalillo County, New Mexico.
7. Tracts A and C are subject to a Shared Parking Agreement filed July 28, 2010 as Document No. 2010077109, records of Bernalillo County, New Mexico. Amendment to Shared Parking Easement filed September 11, 2012 as Document No. 2012093452, records of Bernalillo County, New Mexico.
8. Tracts B and C are subject to a Supplemental Easement for encroachments benefiting Tract A filed July 6, 2012 as Document No. 2012092570, records of Bernalillo County, New Mexico.
9. Tracts A, B & C are subject to covenants, conditions, restrictions, terms, provisions, assessments, liens, levies and easements in Declaration of Easements, Covenants and Restrictions recorded filed July 30, 2010 as Document No. 2010077107, records of Bernalillo County, New Mexico.
10. Easements of record are based on Title Commitment No. 5011635-1986478-AL01 issued by First American Title Insurance Company effective November 24, 2014.

PLAT OF TRACTS B-1 & C-1 SANDIA ADDITION

(A REPLAT OF TRACTS B & C SANDIA ADDITION)
ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO
FEBRUARY, 2015

PROJECT NUMBER _____

APPLICATION NUMBER _____

UTILITY APPROVALS:

QWEST CORPORATION d/b/a CENTURYLINK QC _____ DATE _____

COMCAST CABLE _____ DATE _____

PNM ELECTRIC SERVICES _____ DATE _____

NEW MEXICO GAS COMPANY _____ DATE _____

CITY APPROVALS:

Susan H. Reinhardt P.S. 2/25/15
CITY SURVEYOR DATE

TRAFFIC ENGINEERING, TRANSPORTATION DIVISION _____ DATE _____

ALBUQUERQUE BERNALILLO COUNTY
WATER UTILITY AUTHORITY _____ DATE _____

PARKS & RECREATION DEPARTMENT _____ DATE _____

A.M.A.F.C.A. _____ DATE _____

CITY ENGINEER _____ DATE _____

DRB CHAIRPERSON, PLANNING DEPARTMENT _____ DATE _____

REAL PROPERTY DIVISION _____ DATE _____

TAX CERTIFICATION

THIS IS TO CERTIFY THAT TAXES ARE CURRENT AND PAID ON UPC # _____

PROPERTY OWNER OF RECORD: _____

BERNALILLO COUNTY TREASURER'S OFFICE _____ DATE _____

SURVEYOR'S CERTIFICATION

I, Robert Gromatzky, a registered Professional New Mexico Surveyor, certify that I am responsible for this survey and that this plat was prepared by me or under my supervision, shows all existing easements as shown on the plats of record, or made known to me by the owner, utility companies, or other interested parties and conforms to the Minimum Requirements of the Board of Registration for Professional Engineers and Professional Surveyors and meets the minimum requirements for monumentation and surveys contained in the Albuquerque Subdivision Ordinance, and is true and accurate to the best of my knowledge and belief.

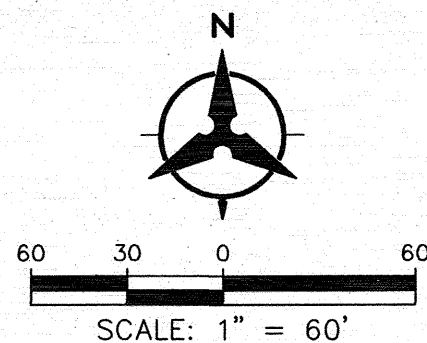
Robert Gromatzky
Robert Gromatzky
New Mexico Professional Surveyor 16469

Date: FEBRUARY 24, 2015



Bohannon  Huston
7500 JEFFERSON STREET NE ALBUQUERQUE, NEW MEXICO

PLAT OF
TRACTS B-1 & C-1
SANDIA ADDITION
(A REPLAT OF TRACTS B & C SANDIA ADDITION)
ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO
FEBRUARY, 2015

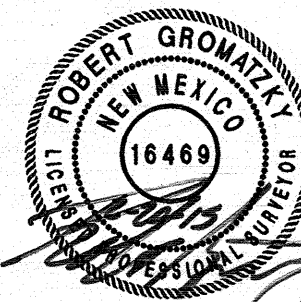


NOTE: AN EXISTING 20' WIDE FLOATING PRIVATE WATER AND SANITARY SEWER EASEMENT GRANTED ON JULY 9, 2010 IN BOOK 2010C, PAGE 0080 VACATED BY VACATION ACTION AND BEING CONFINED AND DEFINED WITH A NEW EASEMENT GRANTED AS SHOWN HEREON.

TANGENT DATA		
ID	BEARING	DISTANCE
T1	N00°12'36"E	15.00'
T2	S89°47'38"E	46.21'
T3	S44°47'38"E	39.24'
T4	S00°13'16"W	15.00'
T5	N89°47'38"W	40.00'
T6	N45°13'28"E	18.03'
T7	S00°12'36"W	27.75'

LEGEND

- BOUNDARY LINE
- NEW LOT LINE
- NEW EASEMENT LINE
- EXISTING EASEMENT LINE
- ADJOINING PROPERTY LINE
- LOT LINE ELIMINATED WITH THE FILING OF THIS PLAT
- PUE PUBLIC UTILITY EASEMENT GRANTED WITH THE FILING OF THIS PLAT
- CITY OF ALBUQUERQUE CONTROL MONUMENT
- FOUND REBAR/CAP STAMPED "GROMATZKY PS 16469" OR NOTED OTHERWISE
- FOUND NAIL/SHINER
- FOUND REBAR/NO CAP
- SET #5 REBAR WITH YELLOW PLASTIC SURVEY CAP STAMPED "GROMATZKY PS 16469"



Bohannon & Huston
7500 JEFFERSON STREET NE ALBUQUERQUE, NEW MEXICO

SHEET 2 OF 2

ACS ALUMINUM DISC STAMPED "1-F18A 1978"
GEOGRAPHIC POSITION (NAD 83)
NM STATE PLANE COORDINATES (CENTRAL ZONE)
N=1,508,405.881 E=1,542,294.950
GROUND TO GRID FACTOR = 0.999663593
DELTA ALPHA = -0°11'20.22"
NAVD 1988 ELEVATION = 5253.858

TRACT D-1
**LANDS OF
NAVAJO TERMINALS, INC.**
FILED: JULY 23, 1998
(98C-220)

TRACT A
SANDIA ADDITION
FILED: JULY 9, 2010
(2010C-0080)
(SEE NOTES 5, 6, 7, 8 & 9, SHEET 1)

TRACT C
TRACT C-1
2.6442 Acres
(SEE NOTES 5, 6, 7, 8 & 9, SHEET 1)
(SEE NOTE THIS SHEET)

TRACT B
TRACT B-1
1.0455 Acre
(SEE NOTES 5, 6, 7, 8 & 9, SHEET 1)
(SEE NOTE THIS SHEET)

TRACT A-1A
SANBUSCO ADDITION
FILED: OCTOBER 2, 1987
(C34-169)

ACS ALUMINUM DISC STAMPED "9-F18 1986"
GEOGRAPHIC POSITION (NAD 83)
NM STATE PLANE COORDINATES (CENTRAL ZONE)
N=1,504,358.281 E=1,539,870.687
GROUND TO GRID FACTOR = 0.999666141
DELTA ALPHA = -0°11'36.74"
NAVD 1988 ELEVATION = 5212.228

Del Norte Dialysis Final Drainage Report

5207 San Mateo Blvd.
Albuquerque, NM 87109

May 5, 2015

Prepared By:



EES

**Entitlement and Engineering
Solutions, Inc.**

518 17th Street, Suite 1575

Denver, CO 80202

Phone: (303) 572-7997

Attn: Amanda M. O'Connor, P.E.

Engineer's Statement

This report for the conceptual design of the Del Norte Dialysis Center was prepared by me or under my direct supervision in accordance with the provisions of City of Albuquerque, Bernalillo County, New Mexico Design Process Manual Section 22. I understand that the City of Albuquerque, New Mexico does not and will not assume liability for drainage facilities designed by others.


Registered Professional Engineer

State of New Mexico No. 19951



(Affix Seal)

Table of Contents

Executive Summary	1
Project Location and Zoning	1
Existing Site and Drainage Concept.....	1
Project Description and Drainage Concept	2
Required Project Approvals	2
Existing Conditions.....	2
Drainage pattern and facilities.....	2
Proposed Conditions.....	4
Drainage Concept	4
Hydrology Criteria	7
Hydraulic Criteria	7
Summary	7
REFERENCES	9
APPENDIX.....	10

Executive Summary

Project Location and Zoning

The Del Norte Dialysis Center project site is located on the west side of San Mateo Boulevard approximately 430 feet north of McLeod Road in the Tract B-1 (formerly Tract B) of the Sandia Addition in the City of Albuquerque, Bernalillo County. This site falls within a designated Enhanced Transit Corridor of an Established Urban Area of the Comprehensive Plan. It is located within the boundaries of the City Zone Map F-17 as shown on the Drainage Map within Appendix C. The site lies within the Flood Zone X and therefore is not designated as a flood prone area in accordance with the National Flood Insurance Program Rate Map No. 35001C0139 G, effective date 9-26-2008. The current zoning for the site is C3, heavy commercial and the proposed use is permissive within this zone category.

Existing Site and Drainage Concept

The site was previously used as a garden nursery but has since been cleared of all structures and overlot graded to follow the historic drainage patterns with topography that falls to the southwest. The site maintains minimal vegetation due to this grading disturbance and demolition.

In 2011, the Golden Corral was designed and constructed in the Tract A of the Sandia Addition, due north of this project. The proposed grading for this site generally drains southwesterly with the northern perimeter of the site draining to the north. This site utilizes curb cuts, cobbled swale rundowns and concrete flumes to connect their site drainage with the existing channel along the north property line of Tract A and then across Tract C-1 (formerly Tract C) to the existing channel along the west Tract-C-1 perimeter. The building roof drains and a portion of this site's west perimeter connect subsurface to the existing storm system within San Mateo Boulevard.

In 2013 two ponds were designed and constructed on west side of Tract C-1 to the north and south (see Appendix A for the Temporary Detention Plan by Isaacson & Arfman, PA, dated 8-27-13). Tract C-1 is located west of this project. These ponds were designed and constructed in response to a failure of the berm along the west side of the existing channel along the Tract C-1 perimeter. The berm was eroding after a series of large rain storms and allowing drainage to flood the adjacent property to the west of Tract C-1. Both detention ponds were designed to detain the 100-year, 6-hour storm for the Sandia Addition Tracts A, B-1 (formerly Tract B) and C-1 in the full developed condition. The contributing basin for each pond is designed with an estimated land treatment D (impervious area) of 80% for the overall basin area. Both ponds outlet flows to the existing west perimeter channel with a controlled release rate. In addition, the existing channels along the north and west perimeters were repaired with shotcrete as part of the overall design of these detention ponds.

Project Description and Drainage Concept

The proposed Del Norte Dialysis Center is an outpatient medical facility with a single story 8,535 sf building. The site layout will incorporate 30 stalls of onsite parking with landscape medians framing each parking aisle and with landscape buffers aligning the perimeters of the site. The proposed site will drain storm flows away from the building toward the curb and gutter aligning the perimeter of the parking area and drives. The storm flow will channelize within the curb and gutter and convey it to the west along the south drive aisle, north along the west row of parking stalls, and west along the north parking area perimeter and then outlet the parking area drainage through two proposed concrete drainage chases located to the northwest corner of the parking area.

These chases will direct Tract B-1 parking area drainage to the existing 28' wide drive aisle to the north of the project site and running east-west along the southern boundary of the Golden Corral parking area. The drive aisle will drain surface flows to the west and outlet at the existing curb cut located to the west end of this drive aisle. A proposed rock lined trapezoidal channel will convey drainage flow from the curb cut to the north pond. The north pond footprint will be extended south to accommodate the additional drainage contributed by Tract B-1 and the south drive aisle. In addition, the rock lined channel originally conveying drainage westerly from this curb and discharging to the existing channel along the west Tract C-1 boundary will be removed. The Golden Corral parking area drainage contributing surface flow to this south drive aisle will remain unchanged.

Required Project Approvals

The development process for this project will require the following approvals listed below. Some approvals are already in process:

- Grading and Drainage Plan
- West lot line adjustment for Tract B and C for the Sandia Addition Plat was approved by the DRB on March 11, 2015 with the project number 1007867. This also included a defined utility easement through Tract B for the benefit of Tract C. With this plat adjustment, Both Tracts B and C were renamed to Tracts C-1 and B-1 to signify the lot line change.
- SDP for Subdivision Minor Amendment reflecting Sandia Addition Plat adjustments listed above was approved on the same date and project number.
- SDP for Building Permit through DRB
- Building Permit
- Retaining Wall Permit

Existing Conditions

Drainage pattern and facilities

The site is currently undeveloped and located in the precipitation zone 2 as outline in the DPM Chapter 22.2. The existing land treatment for Tract B-1 is mostly C where undeveloped. The eastern portion of Tract B-1 is currently built out with an approximate 28' wide shared access

drive for Tracts A, B and C and a finished 20' wide landscape buffer dividing this access drive from the San Mateo Boulevard ROW as was developed with the design and construction of the Golden Corral. The south adjacent property Tract A-1A of the Sanbusco Addition is developed as an industrial use and is elevated above the south Tract B-1 perimeter grades with the use of a small 1-3 foot retaining wall that aligns the south property line (see proposed drainage map). The grading for the Tract B-1 falls to the southwest, allowing for developed flows to drain along the north side of this retaining wall. This retaining wall appears to keep developed flow originating from Tract B-1 to remain within Tract B-1 as well as a portion of Tract C-1 as it drains westerly to the south detention pond. There appears to be no offsite drainage entering this site.

The existing North Pond located to the northwest of Tract C-1 was designed and constructed as a solution to eliminate drainage generated from the Golden Corral site from overtopping the existing west perimeter channel along Tract C-1. The North Pond basin area used to calculate the required pond volume is a simple rectangular basin that incorporates most of the Golden Corral area but does not include the drive aisle aligning the south parking area. The North Pond basin is a conservative depiction of the drainage area tributary to this pond for detention volume calculations but does not reflect the true drainage pattern in the existing condition. This analysis was prepared by Isaacson & Arfman and approved by the City in 2013 (see Appendix A for the Temporary Detention Plan by Isaacson & Arfman, PA, dated 8-27-13).

The true drainage pattern for area draining to the North Pond includes only the large parking area located to the west of the Golden Corral building as tributary area. This west parking area drains surface flow to the pond by way of a curb cut located in the west perimeter curb near the northwest corner of the parking lot (See Curb Opening No. 8 on Golden Corral Restaurant Drainage Plan provided in Appendix A). Drainage outlets to the north pond through the curb cut and is conveyed west down to the pond by a rock lined channel.

The Golden Corral parking area south of the building drains flows southwesterly to the drive aisle running along the south perimeter of the site. The south drive aisle continues to drain surface flow westerly to an existing curb cut located at the west boundary of the drive aisle. The curb cut outlets drainage to a rock lined channel that conveys flows west before discharging to the Tract C-1 west perimeter channel. The shared access drive within Tract B-1 that connects the Golden Corral site to San Mateo Boulevard NE also drains to this south drive aisle and contributes flow directly to the existing west channel by the drainage pattern outline above. As mentioned previously, the Golden Corral parking area was included in the North Pond basin for detention pond calculations but is not actually tributary to the pond in the existing condition.

Proposed Conditions

Drainage Concept

The proposed Del Norte Dialysis site improvements will incorporate a grading and drainage design to include redirecting the Tract B-1 site to drain to the northwest. Retaining walls are proposed along the south and west perimeters of the site to catch grade as necessary to accommodate the proposed grading design. The proposed basin drainage concepts are outline below:

Basin A-1: This basin incorporates the parking area and the drive aisle on the north side of the building. It also includes the adjacent building walks, garden and landscape areas along the north building perimeter. The general drainage pattern within this basin drains storm water away from the building, across the drive aisles to the curb and gutter aligning the north perimeter parking area where flows then become channelized. The curb and gutter along the north drains west to a curb chase located to the northwest of the parking area and denoted on the drainage area map as curb chase #1. The developed peak flows generated in this basin contribute 0.46 and 0.70 cfs for the 10 and 100 year storms. The curb chase #1 outlets this basin flow to the existing Golden Corral south drive aisle (Basin GC1) at design point 2 .

Basin A-2: This basin incorporates the parking area and the drive aisle on the south and west side of the building. It also includes the adjacent building walks and landscape areas along the south and west building perimeter. The general drainage pattern within this basin drains storm water away from the building, across the drive aisles to the curb and gutter aligning the south and west perimeter parking area where flows then become channelized. The curb and gutter along the drains west and then north to a curb chase located to the northwest of the parking area and denoted on the drainage area map as curb chase #2. The developed peak flows generated in this basin contribute 1.12 and 1.69 cfs for the 10 and 100 year storms. The curb chase #2 outlets this basin flow to the existing Golden Corral south drive aisle (Basin GC1) at design point 3.

Basin B: This basin incorporates the building roof drains which are proposed to be conveyed to curb chases and outlet to the drive aisle along the south side of the building at design point 1. Basin B drainage then follows the drainage pattern outlined in Basin A-2 and eventually outlets flow to the curb chase #2 at design point 3.

Basin R: This basin incorporates the developed eastern portion of Tract B-1 that includes the shared access drive, the 20' wide finished landscape buffer east of this shared access, some landscape area along the east side of the Del Norte building and a narrow strip of landscape area aligning the Tract B-1 north perimeter. The existing infrastructure within this basin generally drains storm water northwesterly. The developed flows within the access drive and the eastern landscape median are channeled into the curb and gutter located on the west side of the access drive. Flows continue north in this gutter before it rounds the curb and continues west along the Golden Corral south drive aisle (Basin GC1). At the proposed DaVita site access

points, a 5' valley gutter is proposed to replace the existing curb and gutter to maintain the existing drainage patterns of this access drive described above. This basin generates peak flows of 0.52 and 0.82 cfs for the 10 and 100 storm, respectively.

Basin OS1: This basin contains the landscape strip aligning the south perimeter of Tract B-1 and will continue to drain in a southwesterly direction. The existing retaining wall along the south perimeter will remain intact as is. The minimal flows developed within this basin will continue to drain westerly along the north side of this retaining wall per the existing condition but with greatly reduced flows since the majority of the Tract B-1 drainage is now contained within the Basins A1 and A2. The peak flows generated in Basin OS1 are 0.14 and 0.26 cfs for the 10 and 100 year storm, respectively.

Basin OS2: This basin incorporates the narrow landscape strip aligning the west property line of Tract B-1 and drains westerly into Tract C-1 as done in the existing condition. This basin generates peak flows of 0.06 and 0.10 cfs for the 10 and 100 year storm, respectively.

Basin GC1: This basin contains the existing Golden Corral south drive aisle being used to convey Tract B-1 drainage to the North Pond. This 28' wide asphalt drive drains westerly with a cross slope pushing surface drainage to the south curb and gutter. As this drive extends west the cross slope transitions northwesterly pushing drainage to the north curb and gutter to the existing 8' wide curb cut at the west boundary of this drive aisle (see Curb Opening No. 8 on Golden Corral Restaurant Drainage Plan provided in Appendix A). The existing rock lined channel taking flows from the curb cut to the existing channel along the Tract C-1 west perimeter (bypassing the existing pond) will be eliminated. A new riprap rundown and pad will be constructed to direct flows from the curb cut to the expanded North Pond. This basin generated peak flows of 1.00 and 1.51 cfs for the 10 and 100 year storm, respectively. Design Point 5 designates the cumulative flow entering Basin GC1 that will outlet at the existing curb cut. The access drive is considered a 'common area' for the Sandia Addition Tracts and therefore can serve as a shared drainage way (see highlighted text within Sandia Addition Title Commitment Declaration of Easements, Covenants, and Restrictions included in the appendices of this report).

Basin GC2: This basin contains the existing Golden Corral south parking area. Drainage for this basin surface flows in a southwesterly direction and enters the Golden Corral south drive aisle (Basin GC1, design point 4). This basin will remain unchanged with the proposed Tract B-1 improvements. As discussed in the existing condition section of this report, this area is also already included in the original North Pond basin detention pond required volume (see Appendix A for the Temporary Detention Plan and calculations by Isaacson & Arfman, PA, dated 8-27-13). This basin has been delineated for this report to include its calculated peak runoff and analyze the cumulative impact of this basin and the Tract B-1 added drainage to the south drive aisle surface flows as displayed at design points 4 and 5. The Flowmaster program was used to calculate the normal depth and spread of cumulative flow generated from this basin, Basin GC1 and Tract B-1 drainage and the results are included in the appendix of this report.

This basin generates peak flows of 1.63 and 2.45 cfs for the 10 and 100 year storms, respectively.

Basin GC3: This basin contains most of the existing Golden Corral west parking area and was delineated to include both Basins DA No. 13 & 14 as depicted on the Golden Corral Drainage Plan submitted to the City Hydrology department June of 2010 (see plan in appendix). Basin GC3 (Basins DA No. 13 & 14) drains northwesterly and outlets through two existing curb cuts located along the west perimeter curb of the Golden Corral parking area shown as curb cuts No. 6 & 7 on the Golden Corral Plan. The existing curb cuts outlet to riprap rundowns that direct flows to the North Pond. The proposed Del Norte Dialysis Center improvements on Tract B-1 will not impact the existing infrastructure or drainage pattern within this basin. Basin GC3 was created for the sole purpose of calculating the overall peak flow tributary to the North Pond to establish a new 100 year water surface elevation. This basin generates peak flows of 3.42 and 5.15 cfs for the 10 and 100 year storm, respectively.

Basin P: This basin contains the North Pond including the pond expansion area (see pond expansion discussion below). Basin P was created for the sole purpose of calculating the overall peak flow tributary to the North Pond to establish a new 100 year water surface elevation. This basin generates peak flows of 1.12 and 2.05 cfs for the 10 and 100 year storm, respectively.

North Pond Expansion: The existing North Pond volume and footprint will be expanded to include additional drainage area contributed by the Del Norte parking area and the Golden Corral south drive aisle. The existing outlet structure system which includes a standpipe grate inlet (see Isaacson and Arfman detail on Temporary Drainage Plan) will remain intact and continue the calculated 1 cfs release rate to the Tract C-1 west perimeter channel. The existing North Pond volume and the proposed expanded pond volume calculations are shown in a Civil 3d generated Pond Stage Volume Output Tables located in the appendix of this report.

Using data from a survey prepared April 8, 2015 (Survey included in the Appendix of this report), the existing pond volume was calculated to be 15,784 cf. The Isaacson and Arfman approved proposed provided pond volume is 15,694 cf. The calculated required North Pond expansion volume to accommodate the proposed site improvements is 7,176 cf. The calculated overall North Pond volume required to accommodate the proposed site improvements is 23,340 cf. See the Drainage Area Map for the North Pond Inflow/Outflow Hydrographs for the expansion and overall calculations. The overall proposed North Pond volume provided including the expanded volume is 23,493 cf at the pond contour elevation of 5197.00. The overall required peak volume of 23,340 cf creates a 100 year water surface elevation of 5,196.99 feet within the expanded pond. The resulting freeboard to the emergency spillway elevation of 5197.5 is a depth of 0.51 feet.

The first flush calculations for the Tract B-1 site are shown with the Basin Qpeak Analysis Tables. The required first flush storage volume to be retained is calculated to be 1004 cf. The North Pond invert elevation for the lowest orifice in the outlet structure system before release

to the west channel is 5195.6. The area of the 5295 lowest pond contour surrounding this outlet structure is 2187 sf. The depth to lowest outlet structure invert is 0.60' resulting in a provided 1,312 cf of retained storage volume prior to the release of pond flows to the west channel.

Hydrology Criteria

In keeping with the previous drainage studies performed for the Sandia Addition Tracts A, B, and C, the Peak Flow per Acre for small watersheds method outlined in the Design Process Manual (DPM), Section 22.2 uses the land treatment values listed in Table A-9 to calculate peak runoff for the for the respective storm. The Table A-9 land treatment values reflect the 12 minute time of concentration and produces similar if not slightly more conservative results of those calculated by the Manning Equation $Q=CIA$. Refer to the Appendix B Basin Qpeak Analysis spreadsheet for calculations of the composite peak flow for each basin.

The proposed pond expansion volume calculations will be based on the 100 year, 6 hour storm using the Weighted Excess Precipitation for the developed Peak flows as outlined in the DPM Section 22.2. The equations and calculations are included in the report appendix.

Hydraulic Criteria

Hydraulic criteria used for this analysis conforms to the City of Albuquerque DPM 22.3 Hydraulic Design. No variances from the criteria are requested. All proposed expanded detention pond volume, drainage channel (riprap rundown to pond) and parking area-drive aisle hydraulic calculations conform to the DPM Chapter 22. The drainage channel and parking area/drive aisle depth and spread were calculated using the Bentley Flowmaster V8i program. The pond volumes were calculated using the 2014 Civil 3d Grading Model. Additional calculations will be provided in the Final Drainage Analysis as directed by the City of Albuquerque Hydrology Department. See all hydraulic calculations for the expanded pond volume, drainage chase #1 and 2, the hydraulic depth and spread calculations for various basins and design points within the parking area and the south drive aisle in the appendix of this report.

Summary

The proposed Del Norte Dialysis Center site improvements within Tract B-1 will redirect site grades to drain to the northwest. All grading and storm system improvements including the Del Norte parking area and the Golden Corral south drive aisle are shown to adequately convey the developed peak flows without negative impacts to the existing infrastructure for the Golden Corral as well as the proposed Del Norte Dialysis building. The existing North Pond volume and footprint will be expanded to include additional drainage area contributed by the Del Norte parking area and the Golden Corral south drive aisle. The existing outlet structure system which includes a standpipe grate inlet (see Isaacson and Arfman detail on Temporary Drainage Plan) will remain intact and continue the calculated 1 cfs release rate to the Tract C-1 west perimeter channel. Moreover, the existing rock lined channel taking flows from the curb cut to

the existing channel along the Tract C-1 west perimeter (bypassing the existing pond) will be eliminated to include a new riprap channel/rundown that will drain tributary flows directly to the pond. Further reducing direct drainage to this existing west perimeter channel will be a huge improvement for the overall development and the adjacent property owners since there have been issues with this channel previously.

The existing pond volume was calculated to be 15,784 cf. The Isaacson and Arfman approved proposed provided pond volume is 15,694 cf. The calculated required North Pond expansion volume to accommodate the proposed site improvements is 7,176 cf. The overall proposed North Pond volume after the expanded volume is 23,493 cf exceeding the overall required volume of 23,340 cf at the pond contour elevation 5197.00. The overall required peak volume of 23,340 cf creates a 100 year water surface elevation of 5,196.99 feet within the expanded pond. The resulting freeboard to the emergency spillway elevation of 5197.5 is a depth of 0.51 feet.

The required first flush storage volume to be retained is calculated to be 1004 cf. The North Pond invert elevation for the lowest orifice in the outlet structure system before release to the west channel is 5195.6. The area of the 5295 lowest pond contour surrounding this outlet structure is 2187 sf. The depth to lowest outlet structure invert is 0.60' resulting in a provided 1,312 cf of retained storage volume prior to the release of pond flows to the west channel. All existing invert and grade elevations as provided in the existing survey dated April 8, 2015 (Survey provided in the Appendix of this report).

In addition, this analysis has shown that the Golden Corral south drive aisle has capacity to convey the increased peak flows contributed from the Tract B-1 site improvements. With all combined flows shown at Design Point 5, the calculated depth is 0.25' depth with a 15.1' spread for the 100 year storm. This drive aisle is considered to be a 'common area' defined in the Declaration of Easements, Covenants and Restrictions of the Sandia Addition title commitment and therefore can be used as a shared drainage way for the Sandia Addition Tracts (see highlighted sections included in the Appendix of this report).

In the unlikely case that the existing curb cut draining all tributary flows from the Golden Corral basins GC1 and GC2 and the Del Norte Dialysis site to the expanded North Pond becomes blocked (flow line elevation of 5199.3), this area will pond to a maximum depth of 6 inches (top of curb elevation of 5199.8), the accumulated flow will overtop the curb and flow down the proposed riprap pad directing flows to the pond. There would be no adverse impacts to any proposed or existing infrastructure in this scenario.

REFERENCES

- 1. Design Process Manual, Volume II Design Criteria.**
City of Albuquerque, Bernalillo County, New Mexico. April 1993.
- 2. Flood Insurance Rate Map.**
Community Panel No. 35001C01139G. Bernalillo County, New Mexico. Federal
Emergency Management Agency. September 26, 2008.
- 3. Temporary Detention Plan and Calculations.**
Prepared by Isaacson & Arfman, P.A. Consulting Engineers and Associates. August 28,
2013.
- 4. Drainage Impact Analysis for Golden Corral Restaurant.**
Prepared by SMC Consulting Engineers, P.C. Revised May 28, 2010.

APPENDIX

Appendix A – Drainage Area Map & Drainage Plans of Previous Studies and associated documents

Appendix B - Hydrology

Appendix C – Hydraulics

Appendix D – Construction Plans

APPENDIX A – Basin Information & Drainage Plans of Previous Studies

Proposed Drainage Area Map

Existing Drainage Maps from previous studies

Prepared Survey of Existing Conditions

Title Commitment Declaration of Easement, Covenants and Restrictions

1895 - 5207 San Mateo Blvd.**Aug. 26, 2013**

Based on Drainage Design Criteria for City of Albuquerque Section 22.2, DPM, Vol 2, dated Jan., 1993

NORTH POND BASIN

AREA OF SITE: 128502 SF = 2.95 acres

100-year, 6-hour

DEVELOPED FLOWS:**EXCESS PRECIP:**

		Treatment SF	%	Precip. Zone	2
Area A	=	0	0%	$E_A = 0.53$	
Area B	=	6425	5%	$E_B = 0.78$	
Area C	=	19275	15%	$E_C = 1.13$	
Area D	=	102802	80%	$E_D = 2.12$	
Total Area	=	128502	100%		

On-Site Weighted Excess Precipitation (100-Year, 6-Hour Storm)

$$\text{Weighted E} = \frac{E_A A_A + E_B A_B + E_C A_C + E_D A_D}{A_A + A_B + A_C + A_D}$$

Developed E	=	1.90 in.
-------------	---	----------

On-Site Volume of Runoff: $V_{360} =$

$$E * A / 12$$

Developed V_{360}	=	20394 CF
---------------------	---	----------

On-Site Peak Discharge Rate: $Q_p = Q_{pA} A_A + Q_{pB} A_B + Q_{pC} A_C + Q_{pD} A_D / 43,560$

For Precipitation Zone 2

$$Q_{pA} = 1.56$$

$$Q_{pC} = 3.14$$

$$Q_{pB} = 2.28$$

$$Q_{pD} = 4.70$$

Developed Q_p	=	12.8 CFS
-----------------	---	----------

North Pond Hydrograph

CALCULATIONS: 1895 - 5207 San Mateo Blvd. : Aug. 26, 2013

**HYDROGRAPH FOR SMALL WATERSHED
DPM SECTION 22-2 * PAGE A-13/14**

Base time, t_B , for a small watershed hydrograph is,

$$t_B = (2.107 * E * A / Q_p) - (0.25 * A_D / A)$$

Where

E	=	1.90 inches
A	=	2.95 acres
A_D	=	2.36 acres
Q_p	=	12.8 cfs

t_B	=	0.72 hours
-------	---	------------

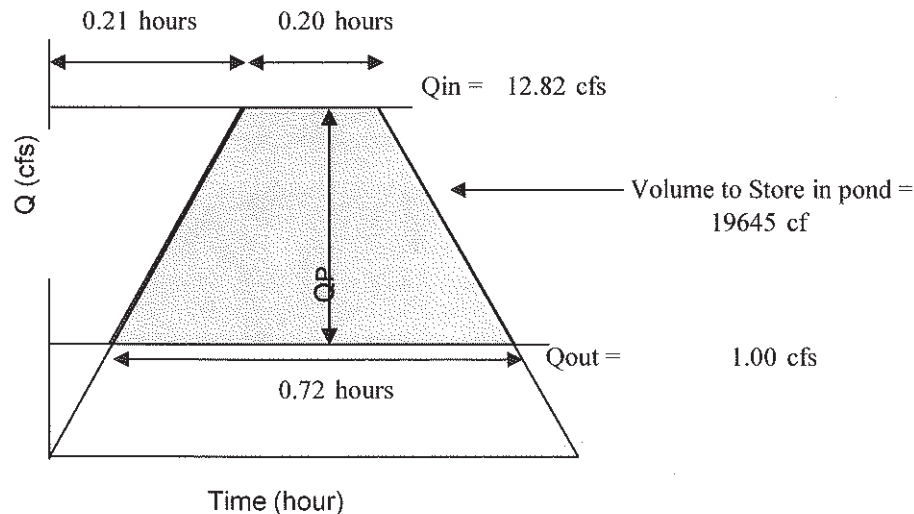
E is the excess precipitation in inches (from DPM TABLE A-8), Q_p is the peak flow, A_D is the area (acres) of treatment D, and A_T is the total area in acres. Using the time of concentration, t_C (hours), the time to peak in hours is:

$$t_p = (0.7 * t_C) + ((1.6 - (A_D / A)) / 12)$$

Where $t_C = 0.20$ hours

$t_p = 0.21$ hours

Continue the peak for $0.25 * A_D / A_T$ hours. When A_D is zero, the hydrograph will be triangular. When A_D is not zero, the hydrograph will be trapezoidal. see the graph below:



NORTH BASIN INFLOW / OUTFLOW HYDROGRAPH

NORTH DETENTION POND		
Contour	Area	Volume
5197.00	12406	
5196.00	9793	11100 CF
5195.50	8585	4595 CF
TOTAL VOL.		15694 CF

SOUTH DETENTION POND		
Contour	Area	Volume
5199.50	14474	
5199.00	13060	6884 CF
5198.00	10400	11730 CF
TOTAL VOL.		18614 CF

DECLARATION OF EASEMENTS, COVENANTS AND RESTRICTIONS

THIS DECLARATION OF EASEMENTS, COVENANTS AND RESTRICTIONS ("Declaration") is made this 28th day of July, 2010, by SANDIA FOUNDATION, a New Mexico non-profit corporation, its successors or assigns (the "Declarant"). GOLDEN CORRAL CORPORATION, a North Carolina corporation ("Golden Corral"), joins this Declaration with respect to that certain tract of land described as Tract A in Exhibit "A-1" (the "Tract A").

WHEREAS, Declarant currently owns the property described in Exhibit "A" consisting of Tract A and the remainder tract which Declarant has divided into two (2) separate tracts (collectively, the "Premises");

WHEREAS, Declarant intends to sell, convey and/or lease all or portions of the Premises to various separate entities as part of a general plan of developing the Premises;

WHEREAS, Declarant desires to develop the Premises for sale as an integrated development for the mutual benefit of each of the tracts and, therefore, wishes to establish certain easements, covenants and restrictions on the Premises;

WHEREAS, in order to preserve the quality and harmonious development of the Premises, the Declarant desires to impose upon the Premises certain protective covenants, conditions and restrictions governing the parking, access, drainage, utilities, landscaping, lighting, signage, maintenance and use of the Premises and of each of the tracts to be sold, conveyed and/or leased by the Declarant;

WHEREAS, the Premises including any of the tracts contained therein shall be sold, conveyed, and/or leased subject to these provisions;

WHEREAS, Golden Corral has contracted to purchase the Tract A from Declarant; and

WHEREAS, Declarant is willing to grant (a) Golden Corral a specific non-exclusive access easement over and across a portion of the remainder of the Premises for purposes of access to and from San Mateo Blvd. NE as shown and designated on Exhibit "A-2" (the "Corral Access Easement") and a shared parking easement (the "Shared Parking Easement") and (b) non-exclusive easements for purposes of signage and water, sewer and utility easements needed for the development of each Tract on the terms and conditions hereinafter stated in this Declaration.

NOW, THEREFORE, Declarant hereby certifies and declares that all of the Premises shall be owned, held, sold, leased, exchanged, conveyed, occupied, improved, maintained and used subject to the covenants, conditions and restrictions hereinafter set forth, all of which shall run with the right, title and/or interest in and to the Premises, and/or any part or parts thereof, and shall be binding upon and inure to the benefit of the present and all future owners of the Premises and/or any part or parts thereof.

Doc# 2010077107

07/30/2010 12:01 PM Page: 1 of 22
DEC R:551.D0 M. Toulouse Oliver, Bernalillo County



ARTICLE I DEFINITIONS

The following terms shall have the meanings specified below.

1.01. Tract A. A certain tract of land containing approximately 2.5064 acres, more or less, located within the Premises as is more specifically shown and designated and specifically described in Exhibit "A-1" hereto.

1.02. Building Area(s). The Building Areas in the Premises are the portions of the Premises upon which buildings or other improvements are constructed from time to time in accordance with approved plans and specifications approved by the City of Albuquerque and/or Bernalillo County, and shall consist of the area within or attached to the exterior surfaces of the exterior walls of any heated building or structure. The approximate location of the Building Areas, to the extent they are known at this time, is limited to the Tract A as shown on the Site Plan for Subdivision, the Site Plan for Building Permit, and the related grading, drainage, master utility, landscape and other plans, as approved by the City of Albuquerque, Bernalillo County, New Mexico, reference City of Albuquerque Project #1007867 and City EPC Case Numbers 09EPC - 400042 & 40043.

1.03. Common Area(s). The Common Areas are all real property within the Premises excluding the Building Areas and the Limited Common Areas; provided, those portions of the Building Areas upon which buildings are not constructed shall be deemed to be Common Areas until such time as the initial construction of buildings thereon commences. The Common Areas shall include, but not be limited to, parking lots, landscaping, lighting, curbs, sidewalks, drainage facilities, driveways and any other Common Area improvements as specifically designated and/or required by the City as Common Areas for the common benefit of the project.

1.04. Date Hereof. The Date Hereof shall mean the date of execution of this Declaration by all parties hereto, as evidenced by the date of the signatures as provided on the signature page of this Declaration.

1.05. Interest Rate. The Interest Rate shall mean the rate of eighteen percent (18%) per annum or two percentage points over the U.S. Prime Rate published in The Wall Street Journal in the latest edition thereof published prior to the date such interest commences, whichever is greater, provided that the Interest Rate shall not exceed the maximum rate permitted by law.

1.06. Limited Common Area(s). That portion of any Tract that is designated on a Site Plan as approved by the City of Albuquerque, Bernalillo County, New Mexico used with respect to specific Building Areas for the exclusive use by the owner of the Tract on which such improvements are located and its customers, invitees, licensees, agents and employees.

1.07. Majority Parties. The "Majority Parties" shall mean those Parties who, collectively, have fee simple title to a total of more than 50% of the square footage of land within the Tracts.

more in which twenty percent (20%) or more of the projected annual gross sales from the restaurant are from the sale of food served buffet style: (II) a Ryan's Family Steakhouse, Fire Mountain Grill, Furr's Cafeteria, Old Country Buffet, or a Hometown Buffet or (III) the following parking intensive users: tavern, bar, or cocktail lounge; restaurant that generates more than 50% of its gross sales from the sale of alcohol beverages; automobile, truck, trailer, or recreational vehicle sales, leasing display or repair facility; phone call center; theater; full service gym or full service health club; and a facility that caters primarily to students or trainees as opposed to customers.

5.03. Non-Interference with Common Area. The Common Area is intended for the nonexclusive use by the Occupants and Permittees.

ARTICLE VI EASEMENTS

6.01. Ingress and Egress. Except as expressly provided by Article IX as to Tract A, Declarant declares, grants and conveys for the benefit of the each Tract, a non-exclusive easement appurtenant to each Tract for ingress and egress by vehicular and pedestrian traffic upon, over and across the Common Area. All easements referenced in this Section 6.01 shall be subject to all restrictions imposed on such uses by this Declaration; provided, such easements shall not pertain to the construction and/or maintenance of utility lines, which shall be governed by the provisions in Section 6.02 below. All such easements shall be as approved by the appropriate governmental authority and the appropriate utility company. Each future Tract owner, by taking title or by leasing its Tract subject to this Declaration, shall be deemed to have accepted such easement(s) with respect to the Common Area.

No fence or other barrier which would unreasonably prevent or obstruct the passage of pedestrian or vehicular travel for the purposes herein permitted shall be erected or permitted within or across the easement areas.

In connection with any construction, reconstruction, repair or maintenance on a Tract, each Tract owner reserves the right to create a temporary staging and/or storage area in the Common Area as will not unreasonably interfere with access between such Tract and the other areas of the Premises and public streets or roadways adjacent to the Premises.

6.02. Utility Lines/Drainage. Except as expressly provided by Article IX as to Tract A, Declarant declares, grants and conveys, for the benefit of each Tract, non-exclusive easements appurtenant to the Tract owned, an easement under, through and across the Common Area, to be specifically described and shown on the Site Plans, for the installation, maintenance, repair and replacement of water drainage systems, flows or structures, water mains, storm drains, sewers, telephone or electrical conduits or systems, gas mains or other public utility facilities necessary for the orderly development and operation of the Common Area and Tract; provided that all such improvements and utilities shall be approved, in writing, by the appropriate governmental authority(s) and utility company(s); provided, further, that the rights granted pursuant to such

easements shall at all times be exercised in such a manner as to cause the least interference with the normal operation of the development on the Premises.

All such systems, structures, mains, sewers, conduits, lines and other public utilities shall be, to the extent reasonably possible, installed and maintained below the ground level or surface of such easements. In the event any Tract owner deems it to be necessary to cause the installation of any utility line across the Common Area provided, however, that in no event will such installation be permitted if it would unreasonably interfere with the normal operation of any business on the Premises or the quiet enjoyment of the Premises or easements thereon by the Tract owner or their successor and/or assigns.

If in exercising the foregoing granted rights, a Tract owner disturbs or otherwise damages any portion of the Common Area improvements, such Tract owner shall expeditiously prosecute to completion the utility work, and at its sole expense, shall immediately restore and repair the Common Area improvements to their condition prior to the commencement of construction. In the event that it should be necessary to grant any of the foregoing easements and rights to the local utility companies as a condition of their providing or continuing service, such rights shall be granted so long as the Tract owner deems the terms and conditions of such grant to be reasonable and necessary.

6.03. Parking Restrictions. Except as expressly provided in Section 9.02 as to Tract A, no persons, other than customers, employees and invitees of the Occupants of the Premises, shall be permitted to park in the Limited Common Areas, unless the Tract owner of the respective Tract gives prior written approval thereto.

ARTICLE VII INSURANCE PROVISIONS

Insurance. Each Tract owner agrees to maintain, or cause to be maintained, liability insurance against claims for bodily injury, death or property damage occurring on, in or about the Common Area within its Tract with a "Combined Single Limit" (covering bodily injury liability and property damage) of not less than One Million Dollars (\$1,000,000.00). Such insurance may be in the form of blanket liability coverage applicable to the Tract owner's Tract and other property owned or occupied by the Tract owner or the party carrying such insurance coverage (or the responsible parent, subsidiary or affiliated companies of such Tract owner or party). Each Tract owner shall, upon request, provide the other Tract owners with evidence of such coverage. Each Tract owner as indemnitor shall indemnify, defend and hold harmless all other Tract owners from all claims, demands, liabilities, losses, costs and expenses with respect to the negligent and/or wrongful acts or omissions of the indemnifying Tract owner relating to construction, restriction, maintenance, use, operation, occupancy and/or management of any part of the Premises and/or with respect to the use by the indemnifying Tract owner and its tenants and Permittees of the easements granted in Article VI. Such indemnity shall not apply to the extent of any loss or claim due to or arising from the negligent or wrongful acts or omissions of the indemnified party.

the requesting Tract owner is not in default in the performance of its obligations under this Declaration, or if in default, to describe the nature and amount of defaults. Each Tract owner receiving such request shall execute and such return such certificate within thirty (30) days following the receipt thereof. The Tract owners acknowledge that such certificate may be relied upon the by third parties designated in the request by the Tract owner requesting such certificate.

10.10. Counterparts. This Declaration, and any amendment thereof, may be executed in any number of counterparts, each of which, when so executed, shall be deemed to be an original; and such counterparts together shall constitute one instrument.

In witness whereof, the undersigned have executed this Declaration effective as of the date first written above.

Sandia Foundation

By: [Signature]

Name: Robert M. Goodman

Title: President & CEO

Golden Corral Corporation

By: [Signature]

Name: Richard T. Chase

Title: VP Development

ACKNOWLEDGMENT

STATE OF NEW MEXICO)

COUNTY OF BERNALILLO)

THIS INSTRUMENT was acknowledged before me on 28th day of July, 2010, by Robert M. Goodman, President & CEO of Sandia Foundation, a non-profit corporation, on behalf of said corporation

My Commission Expires: 5/9/2019

[Signature]
Notary Public

STATE OF NC)

COUNTY OF Wake)

THIS INSTRUMENT was acknowledged before me on 27 day of July, 2010, by Richard T. Chase, VP-Dev. of Golden Corral Corporation, a North Carolina corporation, on behalf of said corporation.

My Commission Expires: _____

April 1, 2014

[Signature]
Notary Public



APPENDIX B - Hydrology

Q_{peak} and Weighted E Pond Calculations

Basin Qpeak Analysis per DPM Section 22.2

Design Package: Del Norte Dialysis Center
Location: Albuquerque, NM 5207 San Mateo NE

Computed: KLR
Checked:

Date: 4/27/2015
Date:

Total Area Tract B-1 = 45541.71 sf 1.05 ac

10-year

Sub-Basin Data				Impervious Area		Zone 2 Land Treatment A				Zone 2 Land Treatment B				Zone 2 Land Treatment C				Zone 2 Land Treatment D				Composite															
		Total Area (sf)	Total Area (ac)	Area (ac)	Basin IMP	Qp A _(10-Yr) Table A-9	Area (sf)	Area (ac)	(Qp * Area (ac)) = Qp A (cfs)	Qp B _(10-Yr) Table A-9	Area (sf)	Area (ac)	(Qp * Area (ac)) = Qp B (cfs)	Qp C _(10-Yr) Table A-9	Area (sf)	Area (ac)	(Qp * Area (ac)) = Qp C (cfs)	Qp D _(10-Yr) Table A-9	Area (sf)	Area (ac)	(Qp * Area (ac)) = Qp D (cfs)	Basin 10-Yr Total (cfs)	Qpeak														
Basin ID	Description																																				
Proposed Conditions																																					
A1	Pr Parking area north of building	6941.00	0.159	0.14	88.0%	0.38	0	0	0.00	0.95	834	0.019	0.02	1.71	0	0.000	0.00	3.14	6107	0.140	0.44	0.46															
A2	Pr Parking area south and west of building	16096.00	0.370	0.35	94.9%	0.38	0	0	0.00	0.95	818	0.019	0.02	1.71	0	0.000	0.00	3.14	15278	0.351	1.10	1.12															
B	Proposed Building Roof drain to pipe	8535.00	0.196	0.20	100.0%	0.38	0	0	0.00	0.95	0	0.000	0.00	1.71	0	0.000	0.00	3.14	8535	0.196	0.62	0.62															
R	Ex Access Drive and LS areas	8921.00	0.205	0.12	60.9%	0.38	0	0	0.00	0.95	709	0.016	0.02	1.71	2775	0.064	0.11	3.14	5436	0.125	0.39	0.52															
OS1	Landscape area along south perimeter	3604.00	0.083	0.00	1.7%	0.38	0	0	0.00	0.95	180	0.004	0.00	1.71	3364	0.077	0.13	3.14	60	0.001	0.00	0.14															
OS2	Landscape area along west perimeter	1427.00	0.033	0.00	2.4%	0.38	0	0	0.00	0.95	0	0.000	0.00	1.71	1393	0.032	0.05	3.14	34	0.001	0.00	0.06															
GC1	Ex Tract A south drive aisle	14266.00	0.328	0.31	95.0%	0.38	0	0	0.00	0.95	0	0.000	0.00	1.71	713	0.016	0.03	3.14	13553	0.311	0.98	1.00															
GC2	Ex Tract A south parking area	23087.00	0.530	0.50	95.0%	0.38	0	0	0.00	0.95	0	0.000	0.00	1.71	1154	0.026	0.05	3.14	21933	0.504	1.58	1.63															
GC3	Ex Tract A west parking area	55223.00	1.268	1.12	88.1%	0.38	0	0	0.00	0.95	0	0.000	0.00	1.71	2561	0.059	0.10	3.14	48647	1.117	3.51	3.61															
P	Ex North Pond Basin	28453.00	0.653	0.00	0.0%	0.38	0	0	0.00	0.95	0	0.000	0.00	1.71	28453	0.653	1.12	3.14	0	0.000	0.00	1.12															
Tract B-1 Total Impervious Area=				77.8%		Tract B-1 Land Treatment (A) Total =				0.00%				Tract B-1 Land Treatment (B) Total =				5.58%				Tract B-1 Land Treatment (C) Total =				16.54%				Tract B-1 Land Treatment (D) Total =				77.84%			

Basins (B)	Total 10-Yr Qpeak to Design Pt 1 =	0.62	cfs
Basins (A1)	Total 10-Yr Qpeak to Design Pt 2 =	0.46	cfs
Basins (A2+B)	Total 10-Yr Qpeak to Design Pt 3 =	1.73	cfs
Basins (A1+A2+B+R+GC2)	Total 10-Yr Qpeak to Design Pt 4 =	4.34	cfs
Basins (A1+A2+B+R+GC2+GC1)	Total 10-Yr Qpeak to Design Pt 5 =	5.34	cfs
Basins (OS1+OS2) to Tract C-1	Total 10-Yr Qpeak to Design Pt C-1 =	0.20	cfs

100-year

Sub-Basin Data				Impervious Area		Zone 2 Land Treatment A				Zone 2 Land Treatment B				Zone 2 Land Treatment C				Zone 2 Land Treatment D				Composite															
Basin ID	Description	Total Area (sf)	Total Area (ac)	Area (ac)	Basin IMP	Qp A (100-Yr) Table A-9	Area (sf)	Area (ac)	(Qp * Area (ac)) = Qp A (cfs)	Qp B (100-Yr) Table A-9	Area (sf)	Area (ac)	(Qp * Area (ac)) = Qp B (cfs)	Qp C (100-Yr) Table A-9	Area (sf)	Area (ac)	(Qp * Area (ac)) = Qp C (cfs)	Qp D (100-Yr) Table A-9	Area (sf)	Area (ac)	(Qp * Area (ac)) = Qp D (cfs)	Basin 100-Yr Total (cfs)	Qpeak														
Proposed Conditions																																					
A1	Pr Parking area north of building	6941.00	0.159	0.14	88.0%	1.56	0	0	0.00	2.28	834	0.019	0.04	3.14	0	0.000	0.00	4.70	6107	0.140	0.66	0.70															
A2	Pr Parking area south and west of building	16096.00	0.370	0.35	94.9%	1.56	0	0	0.00	2.28	818	0.019	0.04	3.14	0	0.000	0.00	4.70	15278	0.351	1.65	1.69															
B	Proposed Building Roof drain to pipe	8535.00	0.196	0.20	100.0%	1.56	0	0	0.00	2.28	0	0.000	0.00	3.14	0	0.000	0.00	4.70	8535	0.196	0.92	0.92															
R	Ex Access Drive and LS areas	8921.00	0.205	0.12	60.9%	1.56	0	0	0.00	2.28	709	0.016	0.04	3.14	2775	0.064	0.20	4.70	5436	0.125	0.59	0.82															
OS1	Landscape area along south perimeter	3604.00	0.083	0.00	1.7%	1.56	0	0	0.00	2.28	180	0.004	0.01	3.14	3364	0.077	0.24	4.70	60	0.001	0.01	0.26															
OS2	Landscape area along west perimeter	1427.00	0.033	0.00	2.4%	1.56	0	0	0.00	2.28	0	0.000	0.00	3.14	1393	0.032	0.10	4.70	34	0.001	0.00	0.10															
GC1	Ex Tract A south drive aisle	14266.00	0.328	0.31	95.0%	1.56	0	0	0.00	2.28	0	0.000	0.00	3.14	713	0.016	0.05	4.70	13553	0.311	1.46	1.51															
GC2	Ex Tract A south parking area	23087.00	0.530	0.50	95.0%	1.56	0	0	0.00	2.28	0	0.000	0.00	3.14	1154	0.026	0.08	4.70	21933	0.504	2.37	2.45															
GC3	Ex Tract A west parking area	55223.00	1.268	1.12	88.1%	1.56	0	0	0.00	2.28	0	0.000	0.00	3.14	2561	0.059	0.18	4.70	48647	1.117	5.25	5.43															
P	Ex North Pond Basin	28453.00	0.653	0.00	0.0%	1.56	0	0	0.00	2.28	0	0.000	0.00	3.14	28453	0.653	2.05	4.70	0	0.000	0.00	2.05															
Tract B-1 Total Impervious Area=				77.8%		Tract B-1 Land Treatment (A) Total =				0.00%				Tract B-1 Land Treatment (B) Total =				5.58%				Tract B-1 Land Treatment (C) Total =				16.54%				Tract B-1 Land Treatment (D) Total =				77.84%			

90th Percentile Storm Event Treatment for Water Quality	
90th Percentile Runoff Depth =	0.44 inches
Initial Impervious Abstraction (Table A-6) =	0.10 inches
Required Treatment Depth (D) =	0.34 inches
Sandia Addition Total Impervious Area (Land Treatment D) =	0.81 acres
Required Retainment for Treatment (D x Imp Area)/12 in/ft=	0.02 acre-ft
Provided First Flush Volume =	1,004 cf

Basins (B)	Total 100-Yr Qpeak to Design Pt 1 =	0.92	cfs
Basins (A1)	Total 100-Yr Qpeak to Design Pt 2 =	0.70	cfs
Basins (A2+B)	Total 100-Yr Qpeak to Design Pt 3 =	2.61	cfs
Basins (A1+A2+B+R+GC2)	Total 100-Yr Qpeak to Design Pt 4 =	6.59	cfs
Basins (A1+A2+B+R+GC2+GC1)	Total 100-Yr Qpeak to Design Pt 5 =	8.10	cfs
Basins (OS1+OS2) to Tract C-1	Total 100-Yr Qpeak to Design Pt C-1 =	0.36	cfs

Required North Pond Detention Volume Expansion Calculations

Project: Del Norte Dialysis Center
 Address: Albuquerque, NM 5207 San Mateo NE
 Tract B-1: 45541 ft² 1.05 acres

Based on Drainage Design Criteria for City of Albuquerque Section 22.2, D.P.M., Vol 2

Excess Precipitation E (Inches) 100 Yr, 6 hr Storm DPM Sect. 22.2 Table A-8				
Zone	A	B	C	D
1	0.44	0.67	0.99	1.97
2	0.53	0.78	1.13	2.12
3	0.66	0.92	1.29	2.36
4	0.80	1.08	1.46	2.64

Basin Name: Tract B-1+Basin GC1
 Precipitation Zone (1-4): 2
 Area: 59790.00 ft² 1.37 acres

Tract B-1 + Basin GC1 Excess Precipitation				
Treatment	Area		%	E
	ft ²	acres		
A	0.00	0.00	0.00%	0.53
B	2541.00	0.06	4.25%	0.78
C	8245.00	0.19	13.79%	1.13
D	49003.00	1.12	81.96%	2.12
Total	59789.00	1.37	100.00%	

1. Weighted E: $\frac{E_A A_A + E_B A_B + E_C A_C + E_D A_D}{A_A + A_B + A_C + A_D} = 1.93 \text{ inches}$

2. Onsite Volume of Runoff V_{360} :

$$V_{360} = \frac{(\text{Weighted E} * A)}{12} = 9,599 \text{ cf}$$

3. Peak Runoff Q_p 100-YR:

$$Q_p = \frac{Q_A A_A + Q_B A_B + Q_C A_C + Q_D A_D}{A_A + A_B + A_C + A_D} = 6.01 \text{ cfs}$$

(Q_p peak value obtained from Basin Q_p peak Analysis for the 100 year)

TABLE A-9. PEAK DISCHARGE (CFS/ACRE)				
Zone	100-YR.			
	Treatment [2-YR., 10-YR.]			
	A	B	C	D
1	1.29 [0.00, 0.24]	2.03 [0.03, 0.76]	2.87 [0.47, 1.49]	4.37 [1.69, 2.89]
2	1.56 [0.00, 0.28]	2.28 [0.08, 0.95]	3.14 [0.60, 1.71]	4.7 [1.86, 2.14]
3	1.87 [0.00, 0.58]	2.6 [0.21, 1.19]	3.45 [0.78, 2.00]	5.02 [2.04, 2.20]
4	2.2 [0.05, 0.87]	2.92 [0.38, 1.45]	3.73 [1.00, 2.26]	5.25 [2.17, 3.57]

Hydrograph for Small Watershed

E = 1.93 inches
 A = 1.37 acres
 Ad = 1.12 acres
 Qp = 6.01 cfs

Note: E is the Excess Precipitation, Qp is the peak flow, Ad is the area of Treatment D, and A is the total contributing area to the north pond.

4. Base Time t_b
 $t_b: (2.107 * E * A / Q_p) - (0.25 * A_d / A) = 0.72 \text{ hours}$

5. Time to Peak t_p
 $t_p: (0.70 * t_c) + ((1.6 - (A_d / A)) / 12) = 0.20 \text{ hours}$
 (t_c is 12 minutes for small watersheds 40 acres or under)

6. $(0.25 * A_d / A) = 0.20 \text{ hours}$ (Peak Duration)

7. Inflow/Outflow Hydrograph Area for Required Detention volume:
 $Q_p \text{ In} = 6.01 \text{ cfs}$
 $Q_p \text{ Out} = 1 \text{ cfs}$

*Required Detention Volume = 7,176 cf
 (*See hydrograph illustration on the Drainage Map for Hydrograph Area Calculations)

Overall North Pond Detention Volume Calculations

Project: Del Norte Dialysis Center
 Address: Albuquerque, NM 5207 San Mateo NE
 Tract B-1, Basins GC1-3, & P: 157,506 ft² 3.62 acres

Based on Drainage Design Criteria for City of Albuquerque Section 22.2, D.P.M., Vol 2

Excess Precipitation E (Inches) 100 Yr, 6 hr Storm DPM Sect. 22.2 Table A-8				
Zone	A	B	C	D
1	0.44	0.67	0.99	1.97
2	0.53	0.78	1.13	2.12
3	0.66	0.92	1.29	2.36
4	0.80	1.08	1.46	2.64

Basin Name: Tributary Tract B-1 Basins +Basin GC1, GC2, GC3,
 Precipitation Zone (1-4): 2
 Area: 157,506 ft² 3.62 acres

Tract B-1 + Basin GC1-3, P Excess Precipitation				
Treatment	Area		%	E
	ft ²	acres		inches
A	0.00	0.00	0.00%	0.53
B	2361.00	0.05	1.50%	0.78
C	35656.00	0.82	22.64%	1.13
D	119489.00	2.74	75.86%	2.12
Total	157506.00	3.62	100.00%	

1. Weighted E:
$$\frac{E_A A_A + E_B A_B + E_C A_C + E_D A_D}{A_A + A_B + A_C + A_D} = 1.88 \text{ inches}$$

2. Onsite Volume of Runoff V_{360} :

$$V_{360} = (\text{Weighted E} * A) / 12 = 24,621 \text{ cf}$$

3. Peak Runoff Q_p 100-YR:

$$Q_p = Q_A A_A + Q_B A_B + Q_C A_C + Q_D A_D = 15.95 \text{ cfs}$$

(Q_p peak value obtained from Basin Q_p Analysis for the 100 year)

TABLE A-9. PEAK DISCHARGE (CFS/ACRE)				
Zone	100-YR.			
	Treatment		[2-YR., 10-YR.]	
	A	B	C	D
1	1.29 [0.00, 0.24]	2.03 [0.03, 0.76]	2.87 [0.47, 1.49]	4.37 [1.69, 2.89]
2	1.56 [0.00, 0.28]	2.28 [0.08, 0.95]	3.14 [0.60, 1.71]	4.7 [1.86, 2.14]
3	1.87 [0.00, 0.58]	2.6 [0.21, 1.19]	3.45 [0.78, 2.00]	5.02 [2.04, 2.20]
4	2.2 [0.05, 0.87]	2.92 [0.38, 1.45]	3.73 [1.00, 2.26]	5.25 [2.17, 3.57]

Hydrograph for Small Watershed

E = 1.88 inches
 A = 3.62 acres
 A_D = 2.74 acres
 Q_p = 15.95 cfs

Note: E is the Excess Precipitation, Q_p is the peak flow, A_D is the area of Treatment D, and A is the total contributing area to the north pond.

4. Base Time t_b
 $t_b = (2.107 * E * A / Q_p) - (0.25 * A_D / A) = 0.71 \text{ hours}$

5. Time to Peak t_p
 $t_p = (0.70 * t_c) + ((1.6 - (A_D / A)) / 12) = 0.20 \text{ hours}$
 (t_c is 12 minutes for small watersheds 40 acres or under)

6. $(0.25 * A_D / A) = 0.19 \text{ hours}$ (Peak Duration)

7. Inflow/Outflow Hydrograph Area for Required Detention volume:
 $Q_p \text{ In} = 15.95 \text{ cfs}$
 $Q_p \text{ Out} = 1 \text{ cfs}$

*Required Detention Volume = 23,340 cf
 (*See hydrograph illustration on the Drainage Map for Hydrograph Area Calculations)

Del Norte Dialysis Center North Pond Stage Storage Volume

Storage Volume Calculations Obtained by Civil 3D 2014

Date: 5/5/2015

Existing North Pond				
Contour Elevation	Contour Area	Depth	Incremental Volume Average End	Cumulative Volume Average End
	sf	ft	cf	cf
5,194.50	2.72	N/A	N/A	0
5,195.00	2,168.65	0.5	542.84	542.84
5,195.50	6,452.63	0.5	2155.32	2698.16
5,196.00	8,382.02	0.5	3708.66	6406.83
5,196.50	9,353.61	0.5	4433.91	10840.73
5,197.00	10,422.60	0.5	4944.05	15784.79
Proposed North Pond Expansion				
5,194.50	2.72	N/A	N/A	0
5,195.00	2,168.65	0.5	542.84	542.84
5,195.50	6,878.97	0.5	2261.91	2804.75
5,196.00	14,029.17	0.5	5227.04	8031.79
5,196.50	15,554.98	0.5	7396.04	15427.82
5,197.00	16,704.25	0.5	8064.81	23492.63
North Pond 100-Year Storage Vol. =			23,340	cf
North Pond 100-Year WSEL =			5,196.99	ft
Depth of Freeboard (Emerg. Spillway 5197.50) =			0.51	ft
WSEL Calculation includes Total Area (basins) Tributary to North Pond (A1, A2, B, R, GC1-3, & P)				

DPM Section 22.2 Notes Land Treatment Descriptions

Land Treatments Table A-4	
A	Soil uncompacted by human activity with 0 to 10 percent slopes. Native grasses, weeds and shrubs in typical densities with minimal disturbance to grading, ground cover and infiltration capacity.
B	Irrigated lawns, parks and golf courses with 0 to 10 percent slopes. Native grasses, weeds and shrubs, and soil uncompacted by human activity with slopes greater than 10 percent and less than 20 percent.
C	Soil compacted by human activity. Minimal vegetation. Unpaved parking, roads, trails. Most vacant lots. Gravel or rock on plastic (desert landscaping). Irrigated lawns and parks with slopes greater than 10 percent. Native grasses, weeds and shrubs, and soil uncompacted by human activity with slopes at 20 percent or greater. Native grass, weed and shrub areas with clay or clay loam soils and other soils of very low permeability as classified by SCS Hydrologic Soil Group D.
D	Impervious areas, pavement and roofs.
Most watersheds contain a mix of land treatments. To determine proportional treatments, measure respective subareas. In lieu of specific measurement for treatment D, the area percentages in TABLE A-5 may be employed.	

APPENDIX C – Hydraulics

Proposed Channel/Rundown and Curb Flow Calculations

West Parking Curb Basins A2 and B 100 Yr

Project Description

Solve For Spread

Input Data

Channel Slope	0.00900	ft/ft
Discharge	2.61	ft ³ /s
Gutter Width	1.00	ft
Gutter Cross Slope	0.07	ft/ft
Road Cross Slope	0.03	ft/ft
Roughness Coefficient	0.013	

Results

Spread	7.43	ft
Flow Area	0.85	ft ²
Depth	0.26	ft
Gutter Depression	0.04	ft
Velocity	3.08	ft/s

Cross Section for West Parking Curb Basins A2 and B 100 Yr

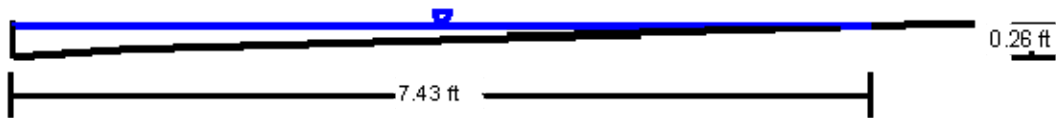
Project Description

Solve For Spread

Input Data

Channel Slope	0.00900	ft/ft
Discharge	2.61	ft ³ /s
Gutter Width	1.00	ft
Gutter Cross Slope	0.07	ft/ft
Road Cross Slope	0.03	ft/ft
Spread	7.43	ft
Roughness Coefficient	0.013	

Cross Section Image



V: 1
H: 1

North Parking Curb Basin A1 100 Yr

Project Description

Solve For Spread

Input Data

Channel Slope	0.03900	ft/ft
Discharge	0.70	ft ³ /s
Gutter Width	1.00	ft
Gutter Cross Slope	0.07	ft/ft
Road Cross Slope	0.03	ft/ft
Roughness Coefficient	0.013	

Results

Spread	3.19	ft
Flow Area	0.17	ft ²
Depth	0.14	ft
Gutter Depression	0.04	ft
Velocity	4.05	ft/s

Cross Section for North Parking Curb Basin A1 100 Yr

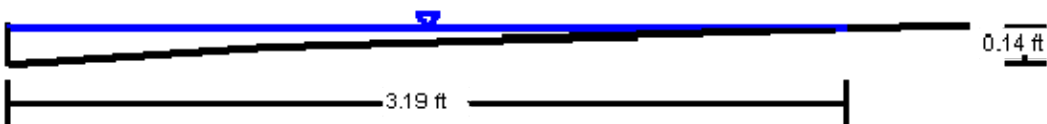
Project Description

Solve For Spread

Input Data

Channel Slope	0.03900	ft/ft
Discharge	0.70	ft ³ /s
Gutter Width	1.00	ft
Gutter Cross Slope	0.07	ft/ft
Road Cross Slope	0.03	ft/ft
Spread	3.19	ft
Roughness Coefficient	0.013	

Cross Section Image



V: 1
H: 1

Drainage Chase #1

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01700	ft/ft
Bottom Width	2.00	ft
Discharge	0.70	ft ³ /s

Results

Normal Depth	0.11	ft
Flow Area	0.22	ft ²
Wetted Perimeter	2.22	ft
Hydraulic Radius	0.10	ft
Top Width	2.00	ft
Critical Depth	0.16	ft
Critical Slope	0.00555	ft/ft
Velocity	3.19	ft/s
Velocity Head	0.16	ft
Specific Energy	0.27	ft
Froude Number	1.70	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.11	ft
Critical Depth	0.16	ft
Channel Slope	0.01700	ft/ft
Critical Slope	0.00555	ft/ft

Drainage Chase #1

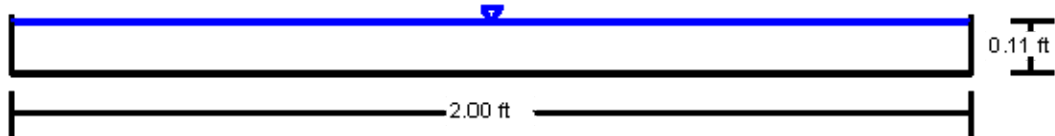
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01700	ft/ft
Normal Depth	0.11	ft
Bottom Width	2.00	ft
Discharge	0.70	ft ³ /s

Cross Section Image



V: 1
H: 1

Drainage Chase #2

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.10000	ft/ft
Bottom Width	2.00	ft
Discharge	2.61	ft ³ /s

Results

Normal Depth	0.14	ft
Flow Area	0.29	ft ²
Wetted Perimeter	2.29	ft
Hydraulic Radius	0.13	ft
Top Width	2.00	ft
Critical Depth	0.38	ft
Critical Slope	0.00522	ft/ft
Velocity	9.07	ft/s
Velocity Head	1.28	ft
Specific Energy	1.42	ft
Froude Number	4.22	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.14	ft
Critical Depth	0.38	ft
Channel Slope	0.10000	ft/ft
Critical Slope	0.00522	ft/ft

Drainage Chase #2

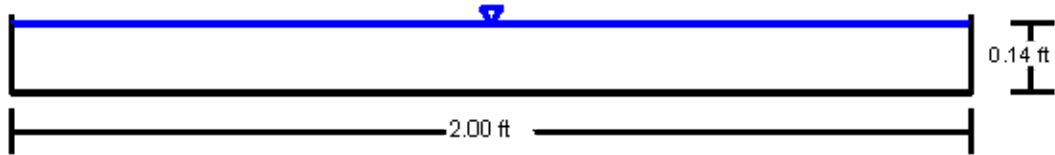
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.10000	ft/ft
Normal Depth	0.14	ft
Bottom Width	2.00	ft
Discharge	2.61	ft ³ /s

Cross Section Image



V: 1
H: 1

Golden Corral Drive Design Pt 4 100 Yr

Project Description

Solve For Spread

Input Data

Channel Slope	0.03000	ft/ft
Discharge	6.60	ft ³ /s
Gutter Width	1.00	ft
Gutter Cross Slope	0.07	ft/ft
Road Cross Slope	0.02	ft/ft
Roughness Coefficient	0.013	

Results

Spread	10.84	ft
Flow Area	1.20	ft ²
Depth	0.27	ft
Gutter Depression	0.05	ft
Velocity	5.50	ft/s

Cross Section for Golden Corral Drive Design Pt 4 100 Yr

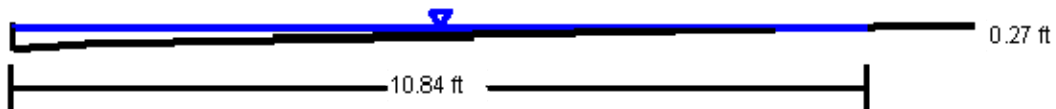
Project Description

Solve For Spread

Input Data

Channel Slope	0.03000	ft/ft
Discharge	6.60	ft ³ /s
Gutter Width	1.00	ft
Gutter Cross Slope	0.07	ft/ft
Road Cross Slope	0.02	ft/ft
Spread	10.84	ft
Roughness Coefficient	0.013	

Cross Section Image



V: 1
H: 1

Golden Corral Drive Design Pt 5 100 Yr

Project Description

Solve For Spread

Input Data

Channel Slope	0.03700	ft/ft
Discharge	7.90	ft ³ /s
Gutter Width	1.00	ft
Gutter Cross Slope	0.07	ft/ft
Road Cross Slope	0.01	ft/ft
Roughness Coefficient	0.013	

Results

Spread	14.96	ft
Flow Area	1.43	ft ²
Depth	0.24	ft
Gutter Depression	0.06	ft
Velocity	5.53	ft/s

Cross Section for Golden Corral Drive Design Pt 5 100 Yr

Project Description

Solve For Spread

Input Data

Channel Slope	0.03700	ft/ft
Discharge	7.90	ft ³ /s
Gutter Width	1.00	ft
Gutter Cross Slope	0.07	ft/ft
Road Cross Slope	0.01	ft/ft
Spread	14.96	ft
Roughness Coefficient	0.013	

Cross Section Image



V: 1
H: 1

North Pond Trapezoidal Channel (Rundown) 100 Yr

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.069	
Channel Slope	0.16700	ft/ft
Left Side Slope	4.00	ft/ft (H:V)
Right Side Slope	4.00	ft/ft (H:V)
Bottom Width	8.00	ft
Discharge	7.90	ft ³ /s

Results

Normal Depth	0.26	ft
Flow Area	2.37	ft ²
Wetted Perimeter	10.16	ft
Hydraulic Radius	0.23	ft
Top Width	10.10	ft
Critical Depth	0.30	ft
Critical Slope	0.10942	ft/ft
Velocity	3.33	ft/s
Velocity Head	0.17	ft
Specific Energy	0.43	ft
Froude Number	1.21	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.26	ft
Critical Depth	0.30	ft
Channel Slope	0.16700	ft/ft

North Pond Trapezoidal Channel (Rundown) 100 Yr

GVF Output Data

Critical Slope 0.10942 ft/ft

Cross Section for North Pond Rundown100 Yr

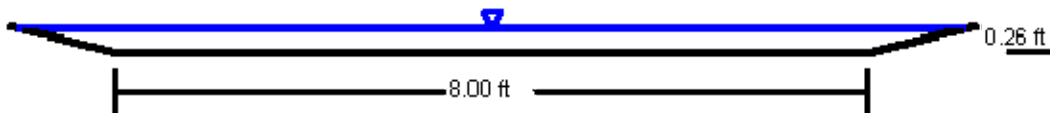
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.069	
Channel Slope	0.16700	ft/ft
Normal Depth	0.26	ft
Left Side Slope	4.00	ft/ft (H:V)
Right Side Slope	4.00	ft/ft (H:V)
Bottom Width	8.00	ft
Discharge	7.90	ft ³ /s

Cross Section Image



V: 1
H: 1

APPENDIX D –Construction Plans

Grading Plans