HYDROLOGY H15/D35 MOTOROLA SERVICE CENTER AND MINI WAREHOUSE

H15-D35

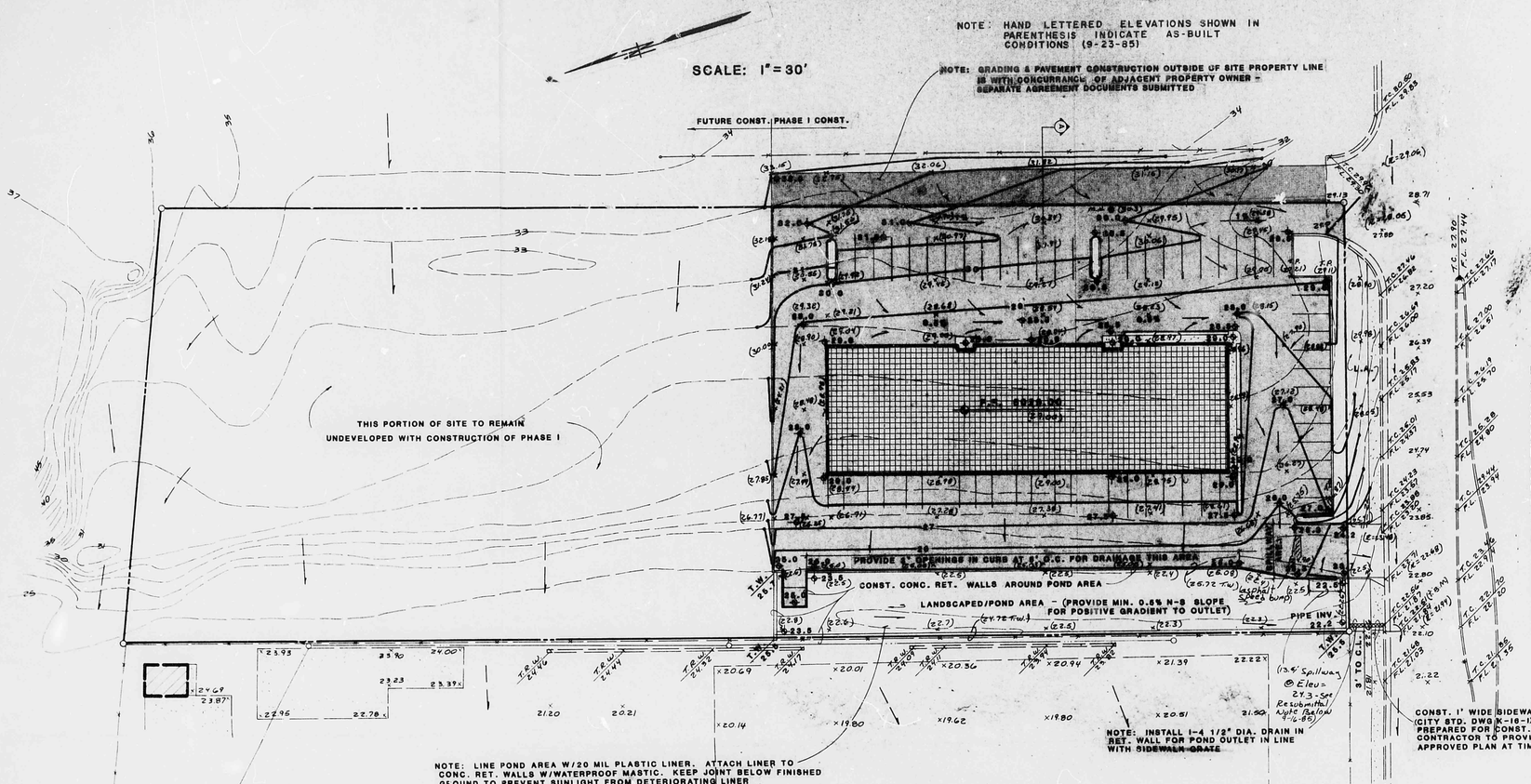
MOTOROLA SERVICE CENTER + MINI WARE-HOUSE

1 PLAN

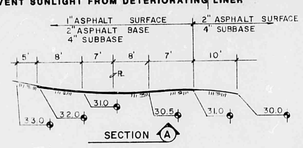
NOTE: HAND LETTERED ELEVATIONS SHOWN IN PARENTHESIS INDICATE AS-BUILT CONDITIONS (9-23-85)

SCALE: 1"=30'

NOTE: GRADING & PAVEMENT CONSTRUCTION OUTSIDE OF SITE PROPERTY LINE IS WITH CONCURRANCE OF ADJACENT PROPERTY OWNER - SEPARATE AGREEMENT DOCUMENTS SUBMITTED



NOTE: LINE POND AREA W/20 MIL PLASTIC LINER. ATTACH LINER TO CONC. RET. WALLS W/WATERPROOF MASTIC. KEEP JOINT BELOW FINISHED GROUND TO PREVENT SUNLIGHT FROM DETERIORATING LINER

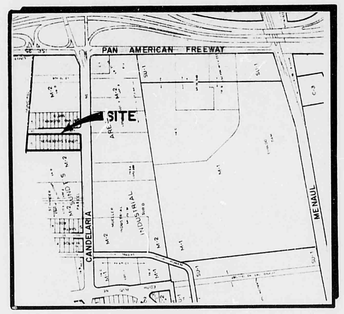


LEGEND

- SIDEWALK, CURB & GUTTER (EXISTING, PROPOSED)
- PROPOSED ASPHALT
- BUILDING (EXISTING, PROPOSED)
- PROPERTY LINE
- 12.7 x — EXISTING SPOT ELEVATION
- EXISTING CONTOUR
- 12.8 — PROPOSED SPOT ELEVATION
- 10 — PROPOSED CONTOUR
- SURFACE FLOW DIRECTION (EXISTING, PROPOSED)
- L.A. — LANDSCAPED AREA
- T.G.W. — TOP OF GRADE WALL (LESS THAN 18" HIGH)
- T.R.W. — TOP OF RETAINING WALL (MORE THAN 18" HIGH)
- T.A. — TOP OF ASPHALT
- T.C. — TOP OF CURB
- F.L. — FLOW LINE
- F.F. — FINISHED FLOOR

CONSTRUCTION NOTES:

1. Before construction, the Contractor shall check and verify pertinent figures shown hereon and shall make all applicable field measurements. Should any conflict, error or discrepancy be discovered, the contractor shall notify the Engineer at once to resolve the problem. It is recommended that the Contractor meet with the Engineer for a pre-design conference to discuss the scope of work and critical areas involved.
2. The Contractor shall be responsible for following the plans using his best skill and attention. Any departure from the plans must be approved by the Engineer and the City Hydrology Department prior to construction.
3. The Contractor shall check the site plan for locations of existing utilities within or adjacent to streets and shall take all necessary precautions and efforts to locate and protect these utilities. He shall give 48 hours notice to Line Locating Service, 765-1234, for any work that may interfere with said utilities.



VICINITY MAP H-15

RESUBMITTAL--10/9/85

Plan resubmitted to show three variations from approved plan.

1. West wall of pond constructed to elevation 24.72' instead of 25.5'.
2. Speed bump constructed across west drive, precluding original spillway outlet from pond.
3. Pond rectangular spillway actually constructed to following dimensions and elevations: width = 3.3', depth = 0.7', elevation at flow line = 24.0'

Discussion

Volume of pond at spillway flow line (24.0') is 11,340 ft³ ((24.0 - 22.5)(7560)). Future developed volume of drainage to pond will be somewhat more than 13,500 ft³, only about 9800 ft³ of which must be ponded during controlled release at 1.3 cfs. Assuming both outlets (4.5" pipe and 3.3' spillway operating, the allowable release of 1.3 cfs occurs at pond elevation of $Q = 2.5(3.3)(0.7)^{1.5} = 4.6$ cfs; $Q = 0.6(\pi)(\frac{4.5}{12})^2\sqrt{64.4(0.7)} = 0.4$ cfs, At pond elevation = 24.12. Ponded volume = 11,025 ft³ (9800 ft³ = 11,250 ft³, which is more than the required amount of pond ft³.

If a 4.5" pipe is plugged, rectangular spillway has capacity of 5.4 cfs ($Q = 2.5(3.3)(0.7)^{1.5}$). Based on a flow routing analysis, this is more than three times the maximum outflow rate which would be encountered during a 100-year storm.

REVISED 5-31-85 : NOTE ADDED TO POND

CHRIS WEISS — DATE 5-31-85

RESUBMITTAL : 8-13-85

- INCREASED HEIGHT OF RETAINING WALLS AROUND POND AREA
- RELOCATED DRAINAGE SWALE WITHIN EAST PROPERTY LINE

CHRIS WEISS, P.E. — DATE 8-14-85

REVISED 9-12-85: SECTION A ADDED

SECTION APPROVED BY CITY ENGINEERING ON 8-22-85 AS PART OF SPECIAL ORDER 19 # E49

CHRIS WEISS, P.E. — DATE 9-12-85

SCOPE:

The proposed improvements, comprised of a service center building for Motorola, associated walks, pavement and landscaping, will be developed as the first phase for the overall parcel. The north half of the site is planned as a mini-ware house project, but a definite site plan has only been worked out for the Motorola phase at this time. The drainage for the entire parcel will be planned for with the construction of the Motorola Building.

The present site is undeveloped land. It had previously been subdivided into narrow M-2 lots, which will be removed with the replat of the site. The topography falls from east to west, with a gradual change occuring on the east side, and retaining walls making the elevation change on the west side. The site is bordered on both sides by existing businesses, which drain to and receive flows from the site.

The intent of this plan is to show:

a) Grading relationships between the existing ground elevations and proposed finished elevations in order to facilitate positive drainage to designated discharge points.

b) The extent of proposed site improvements, including buildings, walks and pavement.

c) The flow rate/volume of rainfall runoff across or around these improvements and methods of handling these flows to meet City requirements for drainage management

d) The relationship of onsite improvements with existing neighboring property to insure an orderly transition between proposed and surrounding grades.

GENERAL NOTES:

LEGAL: Lots 1-18, Suhdt's Industrial Area Subdivision, Albq. N.M. (Area = 2.5 Ac - including 1/2 of vacated Locust Road)

SURVEYOR: Ron Forstbauer Surveying Co.

B.M.: 2-#15-0 Chiseled atop curb at N.E. Corner of Locust & Candelaria. Elev. 5030.50

T.B.M.: West Lot line projection to T.C. @ S.W. corner, T.C. Elev. 5022.51

SOILS: SCS Soils Map #21, Soil Type "Cu", Hydrologic Group "A"

FLOOD HAZARD: Site is not located in or adjacent to a flood zone. Site does, however, contribute to flood zone at Candelaria and the railroad tracks.

OFF-SITE DRAINAGE: Site is subject to sheet flow from upstream property. No defined channel crossings impact the site. Offsite drainage will be routed thru the site for discharge onto Candelaria Blvd.

EROSION CONTROL: Contractor will be responsible for controlling sediment-laden runoff from leaving the site during contruction. Recommend that preliminary drainage patterns be established to outfall at the S.W. corner of the site onto Candelaria. Construct a fabric silt fence across this outfall as a temporary erosion control.

CALCULATIONS:
Based on a pre-design meeting with City of Albuquerque Hydrology, on 1-11-85, the following criteria was established.

a. Discharge to be determined by analysis of downstream capacity.

Calculations are based on the City of Albuquerque D.P.M. Manual, Vol. II for the 100 year-6 hour storm, using the Rational Formula to compare the existing and proposed runoff rates.

RATIONAL METHOD- Q = CIA

Area of site: 108,900 sq.ft.= 2.5 Ac.

Run-off Coefficient:

Existing site:	Developed Site:
A imp. = 0 Ac	A imp. = 2.3 Ac
% imp. = 0 %	% imp. = 92 %
"C" = 0.16 (DPM 22.2 C-1)	"C" = 0.80 (DPM 22.2 C-1)

Rainfall Intensity:

I = P (6.84) Tc = 4.64" per hour
where P = 2.2"(DPM 22.2 D-1)
Tc = 10 minutes

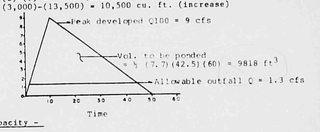
Existing Condition:	Developed Condition:
Q100 = (0.16)(4.64)(2.5) = 2 cfs	Q100 = (0.80)(4.64)(2.5) = 9 cfs
V100 = (2)(5 Tc)(60 sec/in)/2 = 3,000 cu. ft.	V100 = (9)(50)(60)/2 = 13,500 cu. ft.

Available discharge rate for pond
= (0.50 cfs/Ac) (2.5 Ac)
= 1.3 cfs

RECEIVED
OCT 10 1985
HYDROLOGY SECTION

SUMMARY:

Q100 = (2)-(9) = 7 cfs (increase)
V100 = (3,000)-(13,500) = 10,500 cu. ft. (increase)



Downstream Capacity -

The site runoff drains directly to the adjacent property, which eventually routes the flows onto Candelaria Blvd. The runoff then proceeds west, where the storm runoff is stopped by the railroad tracks. It ponds on the east side of the tracks until the storm sewer (4520 for all UM 1203) can absorb the ponded volume. This sewer outlets into the Alameda Drain system, which is presently overloaded with no relief in sight in the near future. (Per construction w/Jim Fink, City Hydrology Dept.)

In summary, due to the extensive flooding on the east side of the railroad tracks and the limited capacity of the storm drainage system downstream from this flood area, the discharge from the site will have to be controlled release, based on a 0.5 cfs/Ac rate.

Offsite Drainage

Total area draining to the site's east boundary is 6.9 Ac. This area extends from the west side of I-25, to the site, and includes a variety of land uses, for an overall percentage of imperviousness of 39%, or C = 0.36. Total drop in elevation is 18', w/ a length of travel of 800', for a Tc = 6 min.; use 10 min. Q100 offsite = (0.36)(4.64)(6.9 Ac) = 12 cfs sheet flow impacting the east property line. A portion of this flow will be intercepted within the access road for Phase I, located in the proposed vacated Locust R/W and directed to Candelaria Blvd. The remaining offsite flows will be allowed to cross the north portion of the site and follow the existing flow patterns to the west. When the north portion is developed, these offsite flows will be routed south to join the flow pattern established for Phase I.

H15/D35

WEISS-HINES ENGINEERING INC.
1100 ALVARADO N.E. SUITE B
ALBUQUERQUE, NEW MEXICO 87110
(505) 266 - 3444

REVISIONS | DATE
DESIGNED CWS 4-85
DRAWN MWS 4-85
CHECKED CWS 4-85

DRAINAGE / GRADING PLAN
MOTOROLA BUILDING

HENGINEERING

CHRISTOPHER L. WEISS — NEW MEXICO — 9043 — REGISTERED PROFESSIONAL ENGINEER

SHEET 1 OF 1