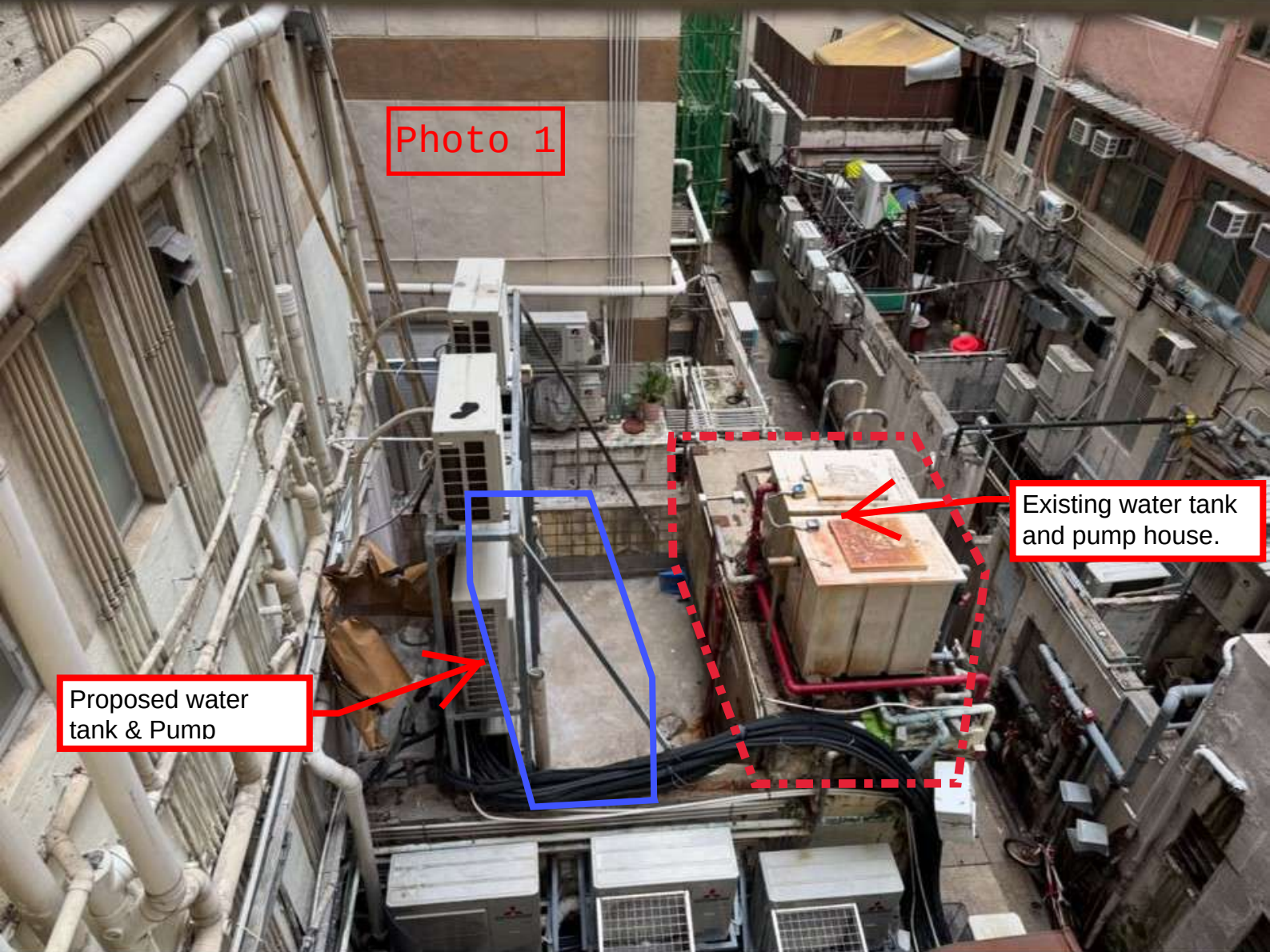
Dear Stanley Hui,

Re: Proposed New Water Tank and Pump Equipment at the 1/F Backyard — Structural Feasibility Concerns

Following review of the available records and site photograph, please note the following:

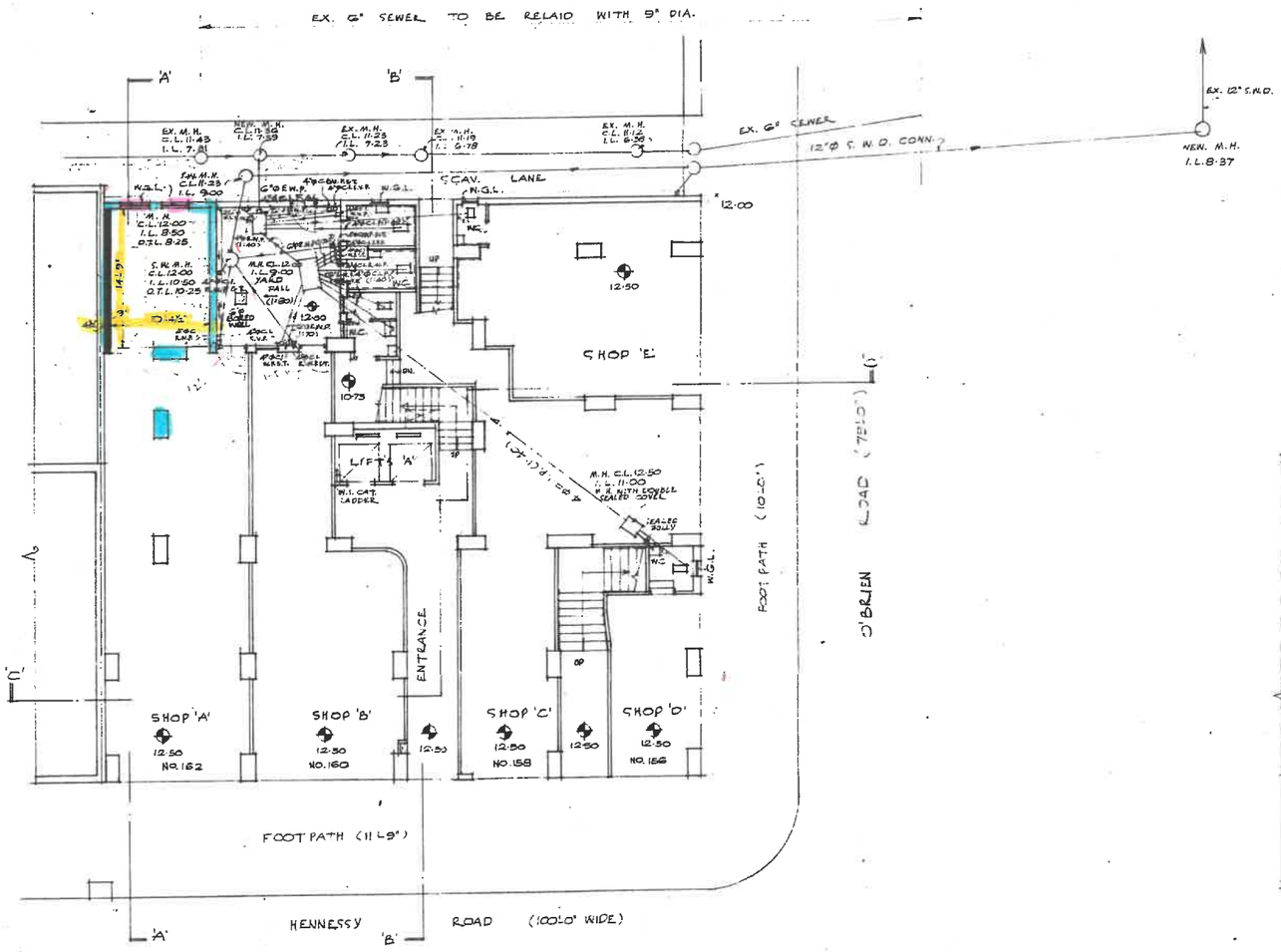
- **Existing records:** The existing RC water tank and pump room, highlighted in red on Photo-1, are shown on the approved general building plan (SK-1). However, these facilities are not shown on the available structural plans (SK-2 and SK-3), and their loads do not appear to have been included in the original design calculations for slab 1S10 (SK-7).
- **Existing slab:** The reinforcement details for slab 1S10 are shown on SK-4 and SK-5. The available records do not demonstrate that the slab was designed to support the existing tank and pump room or additional tank and equipment loads.
- **Age and condition:** The building is approximately 60 years old. Possible deterioration of the concrete, reinforcement, supporting brickwork and mortar must therefore be considered.
- **Potential overloading:** The existing facilities may already impose loads exceeding the slab's original design allowance, although the extent of any overloading has not been established. Additional loads could increase the risk of cracking, deformation or local failure. **We therefore do not recommend installing additional tanks or equipment on or above the existing tank and pump room using these structures as support.** (SK-8)
- **Two additional tanks:** Photo-1 shows two tanks above the existing pump room. No approval records for these tanks have been identified in the documents reviewed. Their full operating weight must be included in assessing the existing supporting structure.
- **Alternative arrangement:** Please consider the area marked in blue on Photo-1 for further feasibility assessment. A possible concept is a steel frame spanning over slab 1S10 without bearing on the slab or existing tank and pump room. Support on the existing brick walls may be investigated, but their suitability and that of their foundations have not been verified. Relocation alone would not eliminate the need to assess combined existing and proposed loads on any shared supports.


Photo 1
Existing water tank and pump house.
Proposed water tank & Pump

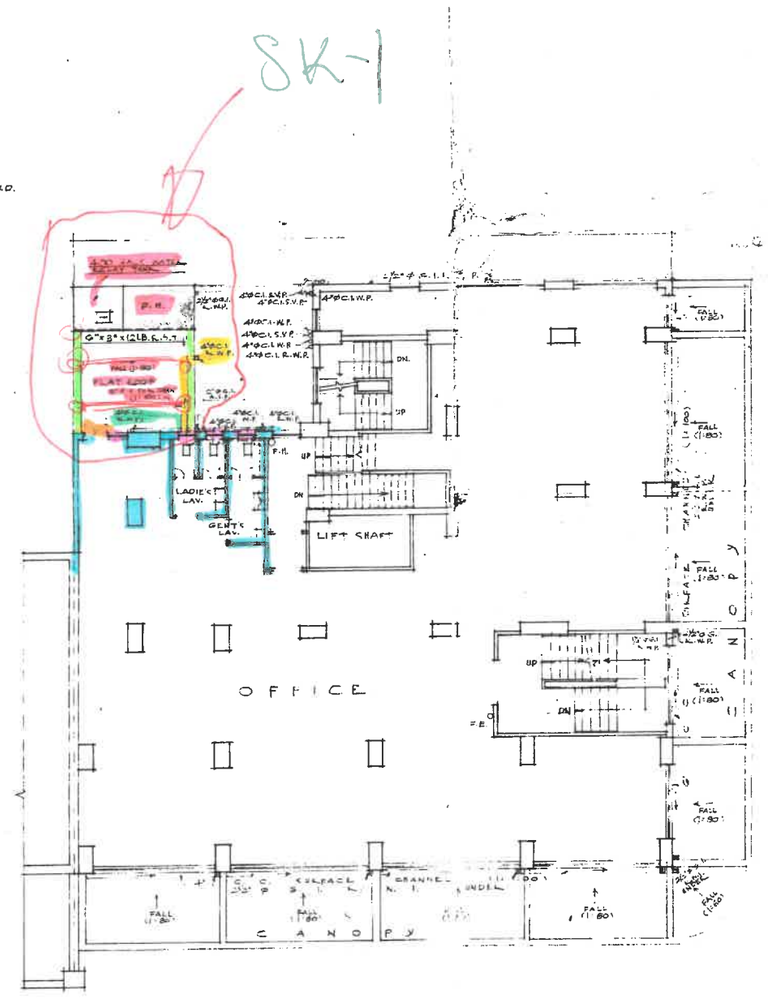
GBP

B.O.O. REF. NO. 2 /2254/62

SK-1



GROUND FLOOR PLAN



FIRST FLOOR PLAN

Approved
PRO BUILDING ADVISORY
27 AUG 1965

RECEIVED BY
20 AUG 1965
BUILDING ADVISORY SERVICE

PROPOSED ~~179 EUROPEAN TYPE W.C.S & 3 STALL URINALS WITH DRAINAGE & ONE BORED WELL FOR~~ SHOPS, OFFICES & TENEMENT HOUSES ON I. L. 2815 SEC. A. B. & I. L. 2816 SEC. B, G, & R. P. AT NOS 156-162 HENNESSY ROAD & O'BRIEN ROAD

DRG. NO 1/5
SCALE: 1/8"=1 FT.

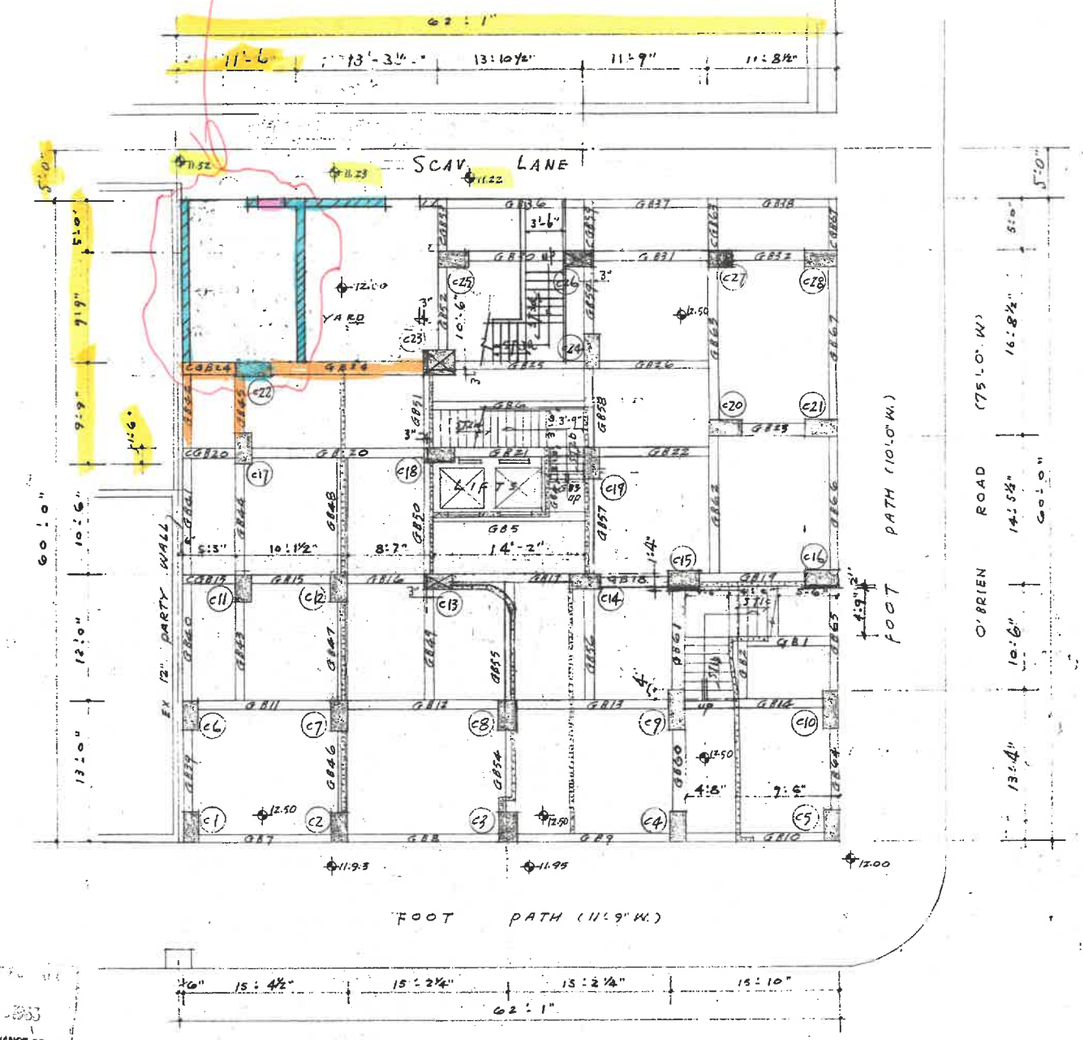
H. S. TAM
ARCHITECT

Frame

B. O. O. REF. No. 3/2254/62

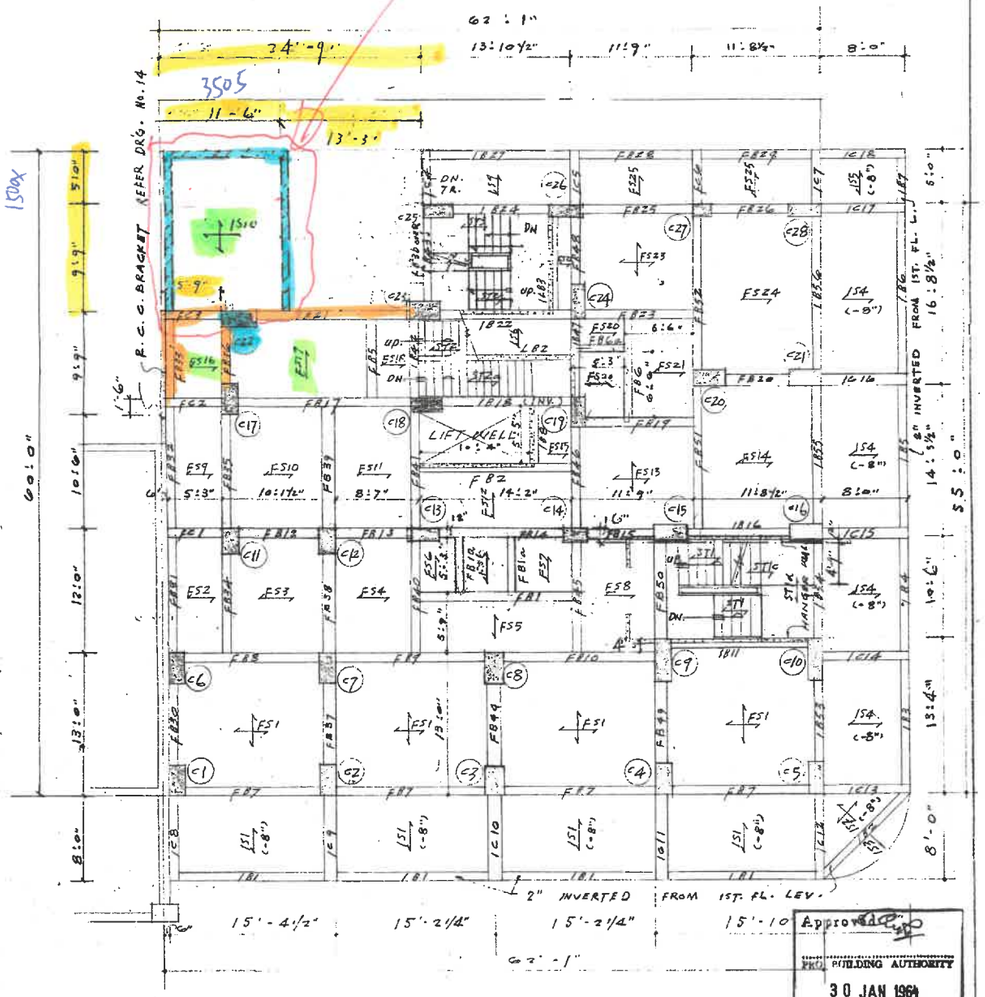
Sk-2

Sk-3



GROUND FLOOR PLAN

(HENNESSY ROAD (100'-0" W)



FIRST FLOOR PLAN

BUILDING ORDINANCE OFFICE P.W.D.

17 JUL 1963
Amended 5 DEC 1963

Approved
BUILDING AUTHORITY
30 JAN 1964

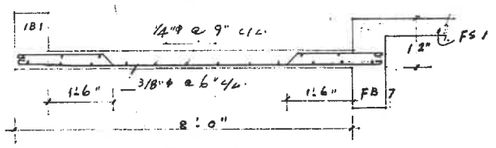
PROPOSED SHOPS OFFICES & TENEMENT HOUSES ON I.L. 2815 SEC A, B & I.L. 2816 SEC B.G. & R.P. AT NOS 156-162 HENNESSY ROAD & O'BRIEN ROAD

SCALE : 1/8"=1:0"
DRG NO : 1/39

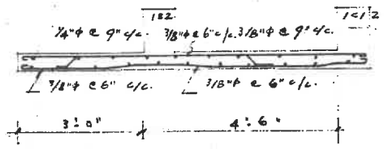
H. S. TAM
ARCHITECT

RC Detail

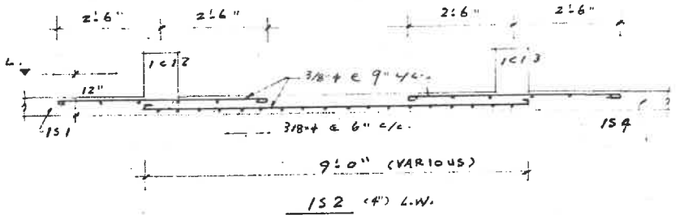
B. O. C. REF NO 3/2254/62



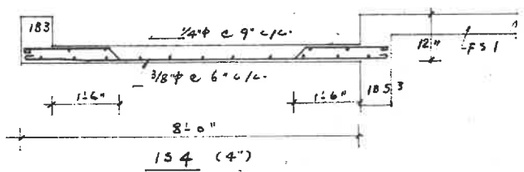
151 (4")



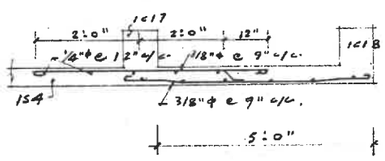
153 (4") 152 (4") S.W.



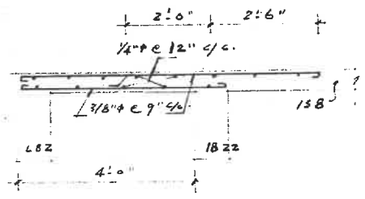
152 (4") L.W.



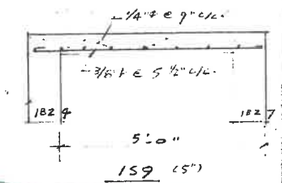
154 (4")



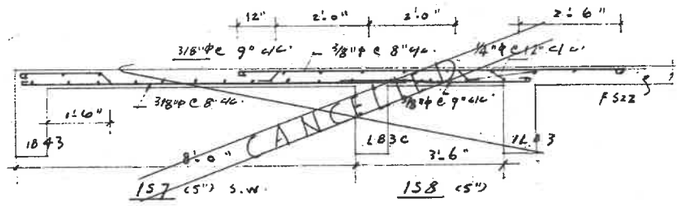
155 (4")



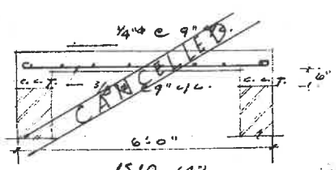
156 (5")



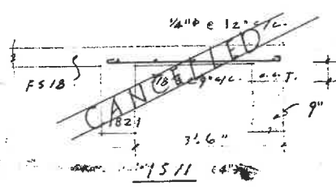
159 (5")



157 (5") S.W. 158 (5")

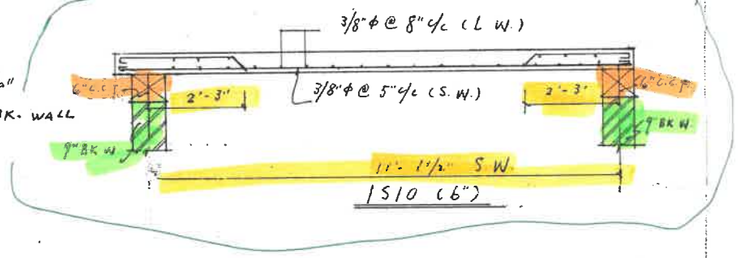


1510 (4")

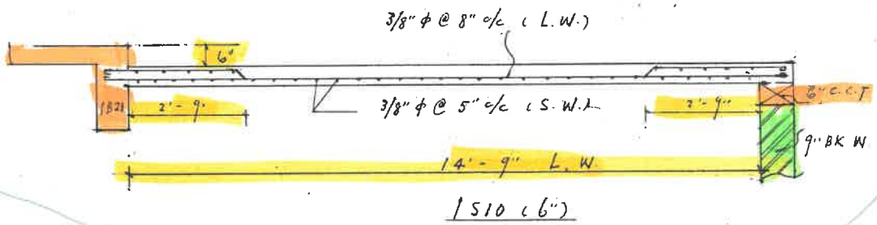


1511 (4")

SK-4



1510 (6")



1510 (6")

SK-5

Approved
PWD BUILDING AUTHORITY
30 JAN 1964

17 JUL 1963
Amended 5 DEC 1963

PROPOSED SHOPS OFFICES & TENEMENT HOUSES ON I.L. 2815 SEC A. B. & I. L. 2816 SEC B. G. & R. P. AT NOS 156-162 HENNESSY ROAD & O'BRIEN ROAD

SCALE: 1/2"=1'-0"
DRG NO 15/39

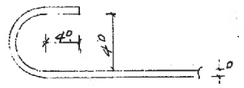
H S TAM
ARCHITECT

Typical Detail

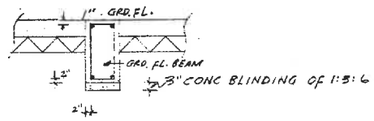
B. O. O. REF NO 3/2254/62

NOTE:

1. ALL CEM. CONC. FOR R. C. WORKS TO BE OF 1:2:4 G. A. MIX; COLUMNS TO BE OF 1:1:2 MIX. G. A.
2. CEM. CONC. COVER TO BARS OF BEAMS TO BE 1" UNLESS OTHERWISE STATED.
3. CEM. CONC. COVER TO BARS OF SLABS TO BE ½".
4. CEM. CONC. COVER TO BARS OF COLUMNS TO BE 1½", FROM GRD. FL. LEV. TO ROOF; 2" COVER FOR BELOW GRD. FL.
5. TYPICAL STANDARD DIMENSION OF BENDING HOOKS:



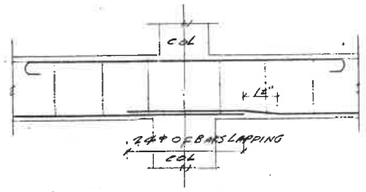
6. 3" CONC. BLINDING OF 1:3:6 MIX. PROVIDED UNDERNEATH GRD. FL. BEAMS.
7. CEM. CONC. COVER TO BARS OF GRD. FL. BEAMS IN CONTACT WITH EARTH TO BE 2"



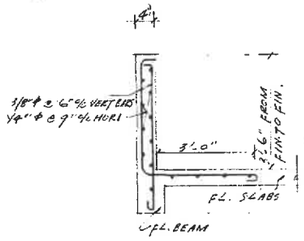
8. ALL DIMENSION OF DETAIL TO BE CHECKED WITH ARCHITECTURAL PLANS.
9. CALCULATION & DETAIL OF FOUNDATION TO BE SUBMITTED SEPARATELY.

NOTE OF R. C. C. WORK:

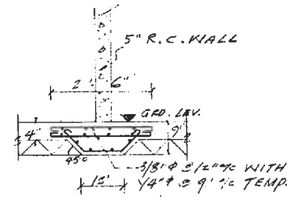
1. ALL CONCRETE IS TO BE OF G A. MIX & IS TO BE BATCH WEIGHED.
2. 1:2:4. MIX. PORTLAND CEMENT SHALL BE OF THE FOLLOWING PROPORTIONS: 100# CEMENT, 170# SAND, 90# 3/8" AGGREGATE & 340# 3/4" AGGREGATE. THE STRENGTH OF SUCH CONCRETE IS TO BE 1900 lbs/in² MIN. AT 7 DAYS AND 2850 lbs/in² MIN. AT 28 DAYS.
3. 1:1:2 MIX. PORTLAND CEMENT SHALL BE OF THE FOLLOWING PROPORTIONS: 200# CEMENT, 170# SAND, 90# 3/8" AGGREGATE & 340# 3/4" AGGREGATE. THE STRENGTH OF SUCH CONCRETE IS TO BE 2500 #/12" MIN AT 7 DAYS AND 3750 #/12" MIN (1193 lbs/in²) AT 28 DAYS.



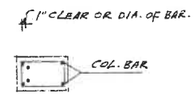
TYPICAL DETAIL OF CONTINUOUS BARS IN INTERIOR SUPPORT



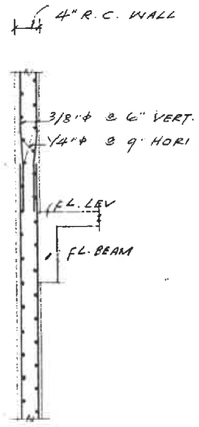
TYPICAL DETAIL OF 4" R. C. RAILING



DETAIL OF R. C. W. FT'G

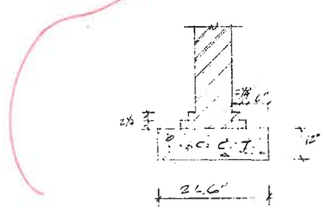


PLAN

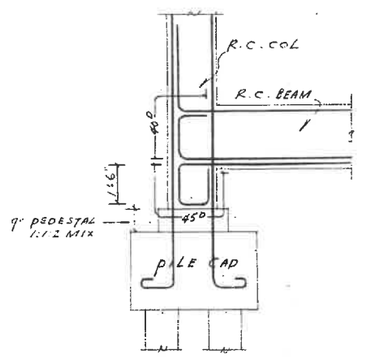


4" R. C. WALL DETAIL

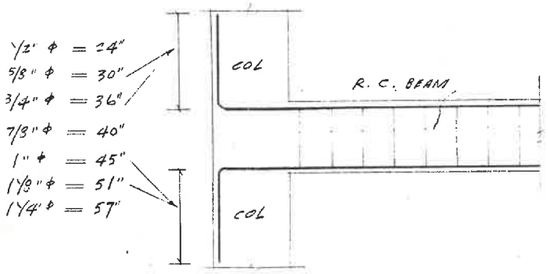
TYPICAL DETAIL SHOWING MAXIMUM VERTICAL DISTANCE BETWEEN LAYERS OF BARS IN BEAMS



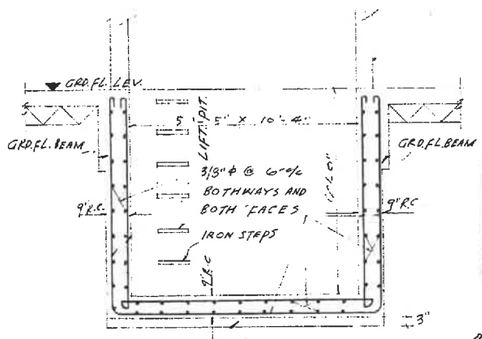
DETAIL OF 9" BK W. FT'G



TYPICAL DETAIL SHOWING ANCHORAGE OF GRD. FL. BEAMS REINFORCEMENT



TYPICAL DETAIL SHOWING WIND STEEL LENGTH BENT INTO COLUMN



LIFT PIT DETAIL

Approved
PWD BUILDING AUTHORITY
30 JAN 1964

17 JUL 1963
Amended 5 DEC 1963

RECEIVED BY BUILDING SURVEYOR'S OFFICE P. W. D. 15 DEC 1963

RECEIVED BY BUILDING SURVEYOR'S OFFICE P. W. D. 1963

PROPOSED SHOPS OFFICES & TENEMENT HOUSES ON I. L. 2815 SEC A. B. & I. L. 2816 SEC B. G & R. P. AT NOS 156-162 HENNESSY ROAD & O'BRIEN ROAD

SCALE:

DRG NO 5/39

H. S. TAM
ARCHITECT

Name: ...

Sheet No. 152 of 192

Date

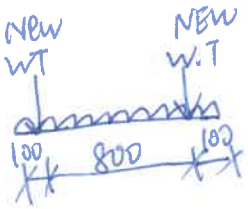
Calculated by

SK-7

No Consider the water tank load

OFFICIAL HARDCOPY WILL NOT BEAR THIS WATERMARK
OFFICIAL HARDCOPY WILL NOT BEAR THIS WATERMARK
正式印本不會附有此水印

Checking of existing 9" Blk wall (1m width)



EX. 1510: 92#10" = 4.41 kpa = 4.41 × 3.505/2 × 1 = 7.73 KN

50#10" = 2.39 × 0.2 × 3.505/2 = 0.84 KN

EX. parapet: 22.6 × 0.229 × 1.1 × 1 = 5.69 KN/m

New water tank: self weight = 90 kg = 0.9 KN

water = 500L = 0.5 m^3 = 500 kg

= 500 × 9.81/1000 = 5 KN

Total = 7.73 + 0.84 + 5.69 + 0.9 × 2 + 5 × 2

= 26.06 KN

Stress = $\frac{26.06 \times 10^3}{1000 \times 229}$ = 0.11 Mpa < 5 Mpa (ok)

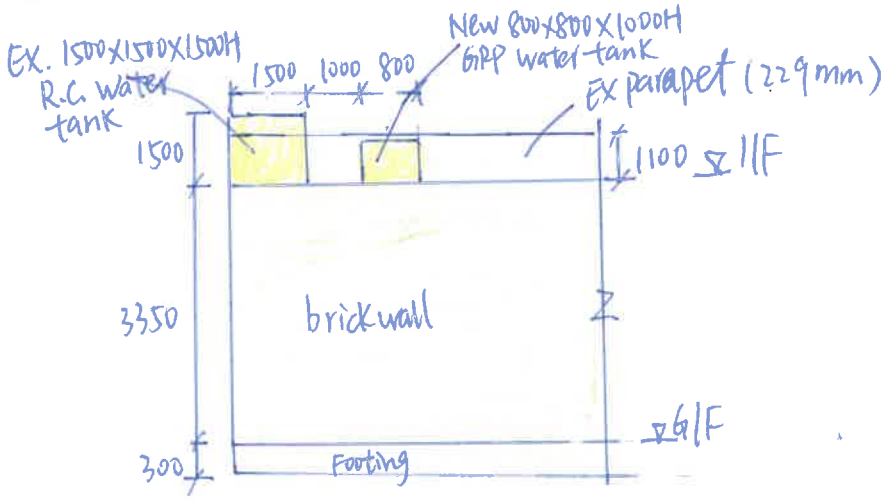
Checking of footing (1m)

self weight of brickwall = 20 × 0.229 × 3.35 = 15.34 KN

self weight of footing = 22.6 × 0.3 × 1 = 6.78 KN

load from above brickwall = 26.06 KN

Total stress = $\frac{15.34 + 6.78 + 26.06}{0.76 \times 1}$ = 63 kpa > 50 kpa (not ok)



sk-8

Conclusion:

From checking of existing structure, it was found that the 9" brickwall between G/F and 1/F is capacable to carry the additional load from the proposed new water tank and pumps with steel supporting frame. However after checking the soil bearing of existing footing supporting 9" brickwall, it is found that the soil bearing stress of footing exceeding the original design allowance. Thus, the addition water tank & pump may affect the structural integrity of the buildi