NYM / 2010 / 0514 / FL

O.S. SHEET: SE 7097-7197

EDITION: 1976

SCALE: 1in 2500

PARISH: ROSEDALE

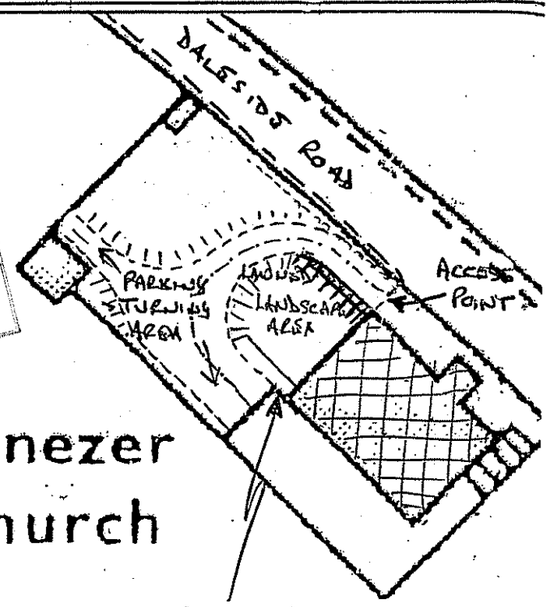
EAST YORKSHIRE FARM SERVICES
3 THE OLD CATTLE MARKET
SMIDDY HILL
PICKERING
YO18 7AN

APPLICATION SITE

Proposed New Access and Off-Road Parking

for Headland School @ Rosedale Ebenezer Methodist Church

INSET



NYMNPA
28 JUN 2010

Rosedale Ebenezer Methodist Church

SCALE: 1in 500

DALESIDE ROAD

N

NEW FILTOR DRAIN

EXISTING STONE WALL

TBM. [LID] 25.000

REMOVE TREES

ACCESS POINT

EXISTING RECESS ACCESS

NEW RETAINING WALL +SAFETY FENCE

THE OLD EBENEZER CHURCH AND SCHOOL BUILDING

Mixture of:-
HAWTHORN
SLOE
HOLLY
ROWAN
DOG ROSE

MIX OF:-
CRAB APPLE
WILD CHERRY
BIRD CHERRY
HOLLY
ROWAN
WAYFARING TREE
DOG ROSE

NEW PARKING AREA

TBM 21.285

FORM NEW GATEWAY IN WALL

ROWAN

VIBURNUM

SLOE

HAWTHORN

REMOVE OLD FOUNDATIONS

MIX OF SLOE
DOG ROSE
HAWTHORN

NYMNPA
28 JUN 2010

SCALE 1:100

PROPOSED NEW ACCESS ARRANGEMENTS & OFF ROAD PARKING for HEATHLANDS SCHOOL @ THE OLD EBENEZER CHURCH - LANDSCAPING PROPOSALS

EBENEZER CHAPEL ROSEDALE

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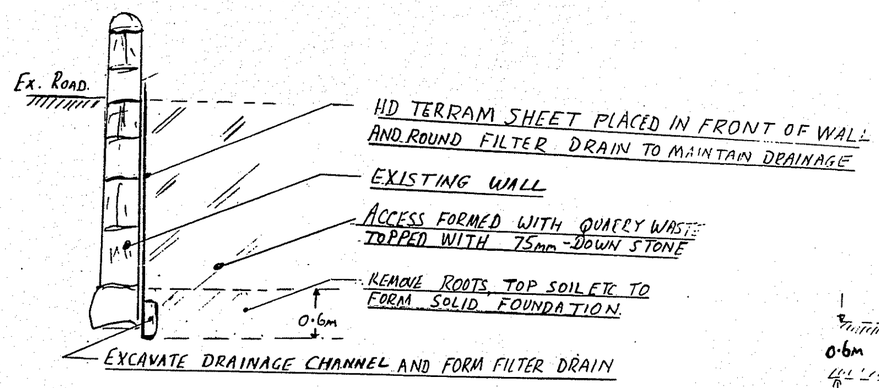
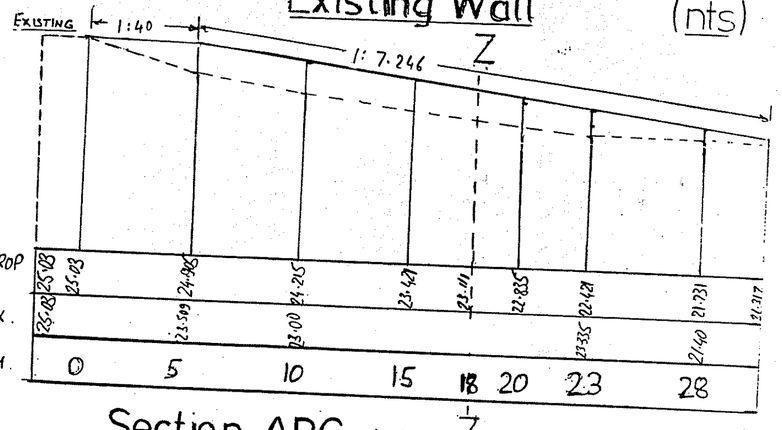
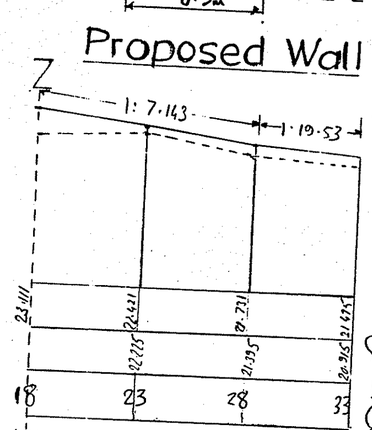
PROPOSED NEW ACCESS AND OFF-ROAD PARKING FACILITIES WITH ASSOCIATED DISABLED ACCESS



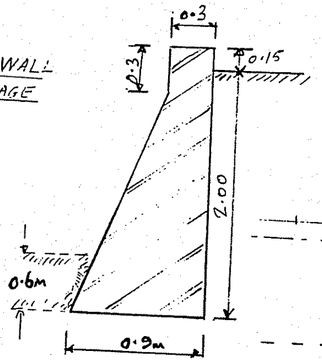
Existing Wall (nts)

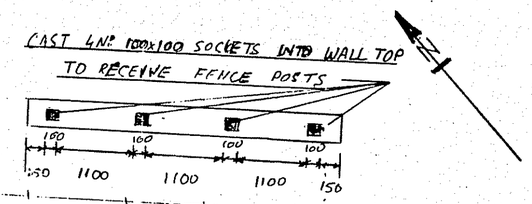


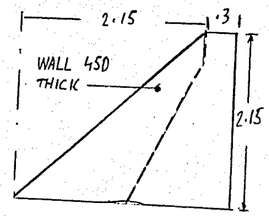
Section ABC Z

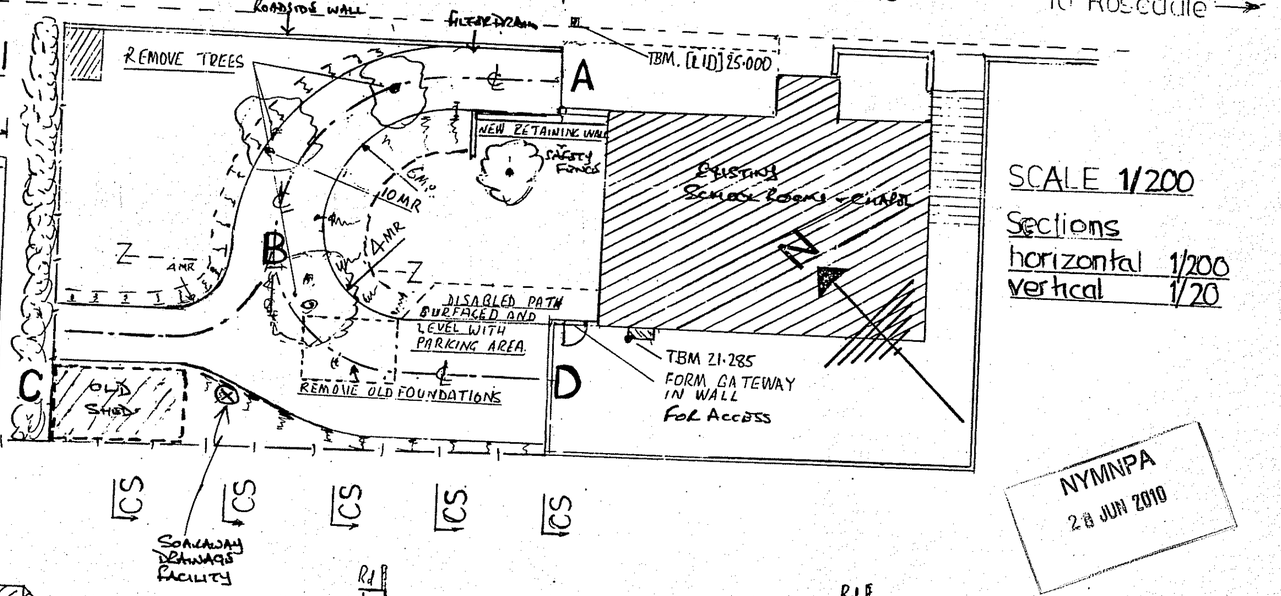


Proposed Wall



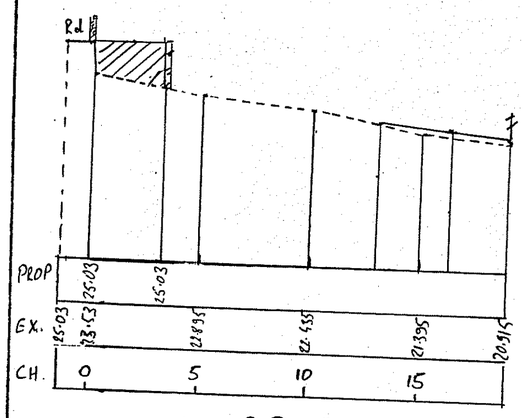




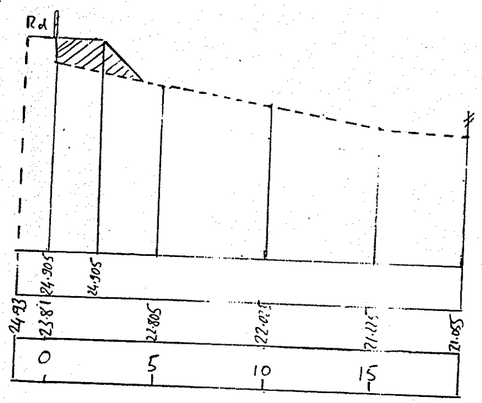


SCALE 1/200

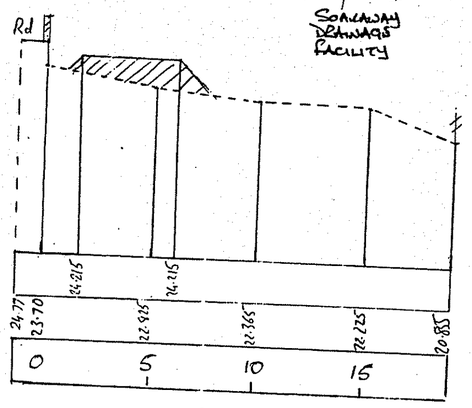
Sections
horizontal 1/200
vertical 1/20



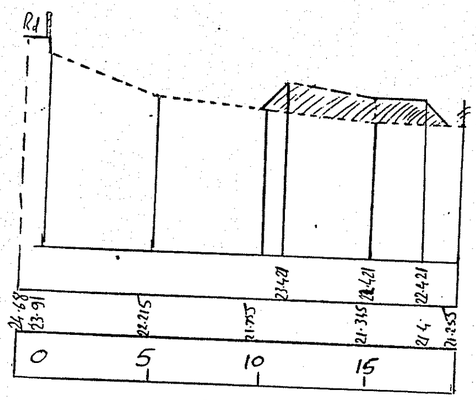
CS 0



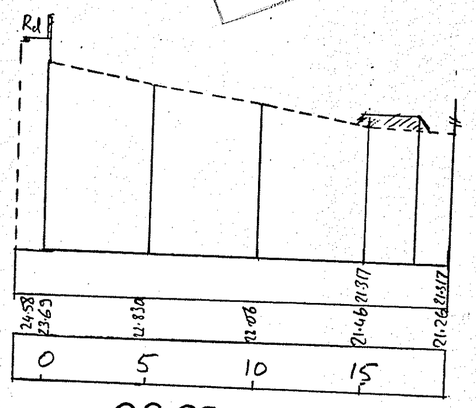
CS 5



CS 10



CS 15



CS 20

ORIGINAL

①

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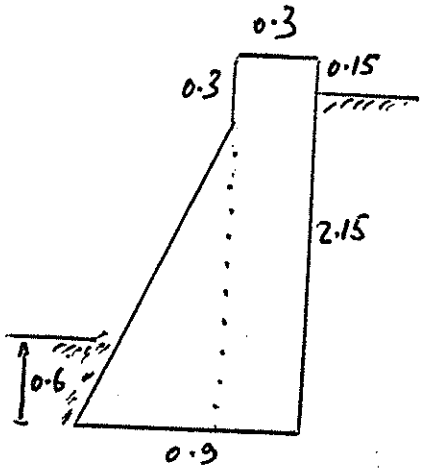
EBENEZER CHAPEL ROSEDALE



Area of wall $= 2.15 \times 0.3 + \frac{0.6 \times 1.85}{2}$

$= 1.2\ m^2$

Weight of Wall = Concrete = 155 lb/ft² [Reynolds Table 1]

$= 1.2 \times 155 \times 35.32 \times .45$ = 2956.284 Kg /metre run.

= 29001.15 KN

Position of Centroid.

By area moments from inner edge

$2.15 \times 0.3 \times 0.15 + \frac{0.6 \times 1.85}{2} \times \left[\frac{.6}{3} + .3\right] \div 1.2$ = .3118 m from inner face.

By area moments from base.

$2.15 \times 0.3 \times \frac{2.15}{2} + \frac{0.6 \times 1.85}{2} \times \frac{1.85}{3} \div 1.2$ = .863 M above base

Horizontal Pressure due to fill

Pressure $P = K \frac{9.81\ WH^2}{2} \sec \delta$

K = 0.17 [Reynolds table 11]

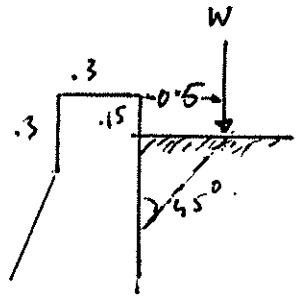
δ = 20° assumed in absence of data.

Density of fill = 95 lb/ft³ [table 11]
= 1500 Kg/m³

$P = \frac{0.17 \times 9.81 \times 1500 \times 2^2}{2} \sec 20$

= 5324.2 KN

Load due to vehicles

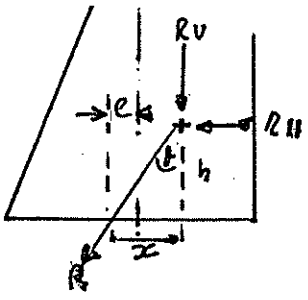


Taking small vehicle wheel load as 2 ton/wheel

$$P = 0.17 \times \frac{9.81}{2} \times 2000 \times 1.5^{-2} \sec 20 = \underline{3993.14 \text{ KN}}$$

Total horizontal load = 3993.14 + 5324.2 = <u>9317.34 KN</u>

Resultant Force and Position



Rv = Vertical load = 29001.15 KN
RH = Horizontal load = 9317.34 KN
e = eccentricity from centre of base.
x = displacement
θ = angle of vector.

$$\tan^{-1}\theta = 9317.34 / 29001.15 = \underline{17.81^\circ}$$

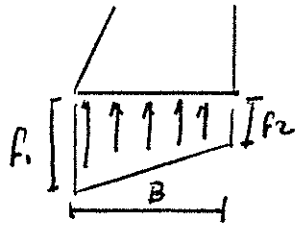
$$x = h \tan\theta = .863 \tan 17.81 = \underline{0.2773 \text{ M}}$$

$$\therefore \text{eccentricity} = .2773 + .3118 - 0.45 = \underline{.1391}$$

For stability Resultant must be within the middle third of base (0.6)

$= 0.6 < .2773 + .3118$ ∴ <u>base stable</u>

Bearing Pressure.



$$f_1 = \frac{R_v}{B}\left[1 + \frac{6e}{B}\right] \quad kN/m^2$$

$$f_2 = \frac{R_v}{B}\left[1 - \frac{6e}{B}\right] \quad kN/m^2$$

$R_v = 29001.15$ kN, $e = .1391$ $B = 0.9$.

$$\therefore f_1 = \frac{29001.15}{.9}\left[1 + \frac{6 \times .1391}{.9}\right] = \underline{62105.43 \ kN/m^2}$$

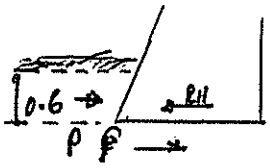
$$f_2 = \frac{29001.15}{.9}\left[1 - \frac{6 \times .1391}{.9}\right] = \underline{2341.57 \ kN/m^2}$$

Soil bearing [Reynolds table 10.1] bearing Pressure = 0 - 3/4 ton/ft²

$$= 62105.43 \times 0.929 \times \frac{1}{9.81} \times 2.22 = 1505.65 \ lb/ft^2 = \underline{0.583 \ ton/ft^2}$$

$\therefore$ ok for Bearing.

Resistance to Sliding



F = frictional resistance of soil $\tan\phi$ for in situ conc.

for safety $\frac{F + P}{R_H} = 2$ (Clos of 2)

$F = R_v \tan\phi = 29001 \tan 35 = \underline{20306.82 \ kN}$

$R_H = \underline{9317.84 \ kN}$

$\phi = 35^\circ$

$P = \frac{9.81}{2} \times 1500 \times 0.6^2 \left[\frac{1 + \sin\phi}{1 - \sin\phi}\right] = \underline{9774.2 \ kN}$

$$\therefore \frac{20306.82 + 9774.2}{9317.84} = \underline{3.23} \quad \therefore \text{ ok for sliding}$$