HEADQUARTERS FORCE 343
A. P. O. 758

31 May 1943.

The following information has been received from Force 141:

Appn/615/43/M.I.3.b. MOST SECRET

APP "A"

Estimated STRENGTH OF GROUND FORCES employed at certain Aerodromes in Sicily

A. General

(1) As the four aerodromes in question are in the concentration areas of first line divisions it is likely that considerable outside assistance will be available for their defence in addition to the A.A and static defence troops already employed.

(2) Mobile Defence Groups ("Nuclei Celeri") improvised to suit local requirements, but consisting generally of 600-800 men (lorry-borne) well equipped with A/Tk guns, H and L.M.Gs and some A.F.Vs (probably L.3 tanks or armoured cars) will be stationed where they can best be employed as Reserve Striking Forces in the event of enemy air or sea-borne landings in their proximity. An Order of Battle for these groups is given on page 32 of Sicily Order of Battle dated 18th April 1943.

(3) German Air Force personnel are known to man some of the A.A defences. In estimating the strength of A.A personnel no difference has been made between Italian and German batteries.

(4) The estimates for A.A guns etc, are based largely on C.I.U. Report XY.36 of 13th April 1943 after allowance has been made for a certain number of emplacements being empty or dummy. This report should be of considerable assistance in showing the extent of wiring, position of pill boxes etc. in the perimeter of the aerodromes under consideration.

(5) It should be remembered that in many cases the A.A batteries are sited for ground as well as A.A defence, and will therefore be of some value in a dual purpose role.

(6) Anti-Parachutist Groups (Nuclei Antiparacadutisti) - small units of 25-50 men, specially trained in anti-parachutist warfare and working under command of the Coastal Battalions may be expected in the vicinity of aerodromes. A list of these units with their location will be found in the Sicily Order of Battle of 18th April 1943.

B. SOUTHERN SICILY

The two aerodromes under consideration are in the area covered by 54 and possibly by 4 Inf. Div. BISCARI aerodrome is probably within the boundary of207 Coastal Div. and the defences of COMISO are probably in 206 Coastal Div. area.

(1) BISCARI AERODROME

	Hy. A.A.	Lt. A.A.	M.G.	A/Tk	Mor-tars	L.M.Gs	Personnel
A.A. Defences	12	48	8	-	-	-	1,600
Mobile Forces (Probably includes 250 Cav. and 16 Lt. tks.)	-	-	12	8	6	24	900
Static Defence Tps. (C.Bns.Militia and elements 54 Div.)	-	-	4	9	60		1,500

(1) Biscari Aerodrome (cont)

	Hy. A.A.	Lt. A.A.	M.G.	A/Tk	Mortars	L.M.Gs	Personnel
Services etc. (Carabinieri, Medical, MT Supply)	-	-	-	-	-	-	300
TOTAL:	12	48	38	12	15	84	4,300

(2) COMISO AERODROME

	Hy. A.A.	Lt. A.A.	M.G.	A/Tk	Mortars	L.M.Gs	Personnel
A.A. Defences	20	24	6	-	-	-	1,500
Mobile Forces	?						
Static Defence Tps. (exclusive 1st line elements)	-	-	24	8	9	80	2,300
Services etc. (Carabinieri, Medical, MT Supply)	-	-	-	-	-	-	500
TOTAL:	20	24	30	8	9	80	4,300

C. EASTERN SICILY

GERBINE, its 8-9 satellite landing grounds, and the aerodrome at CATANIA come within the area of 54 Inf Div and 213 Coastal Div. At SCORDIA is a Battalion of R.35 (11 ton) French Tanks,* Coys of which have probably been allocated to the local Mobile Groups. The large number of MT units in the CATANIA area suggests that a considerable part of the defence troops may be lorry-borne. These mobile forces in the CATANIA area will be available as reinforcements or reserves to the static aerodrome defence troops.

(1) CATANIA AERODROME

	Hy. A.A.	Lt. A.A.	M.G.	A/Tk	Mortars	L.M.Gs	Personnel
A.A Defences (some of these may be for the defence of the town)	42	34	12	-	-	-	3,500
Mobile Defence (probably includes 16 L-3 tks, Mot. M.G. Coy. etc.)	4 x 75 mm guns		12	16	9	24	900
Static Defence Tps.	-	-	24	8	9	40	2,000
Services	-	-	-	-	-	-	300
TOTAL:	42 (4 4 x 75 mm guns)	34	48	24	18	64	6,700

* Described in FM 30-42 - p. 50-51.

(2) GERBINI AERODROME (excl. satellites)
(Some of the defence troops may be employed at CATANIA)

	Hy. A.A.	Lt. A.A.	M.G.	A/Tk.	Mor-tars	L.M.Gs	Personnel
A.A. Defences	24	48	-	-	-	-	2,000
Mobile Defence (probably includes tks. Mot. M.G Coys etc)	-	-	12	8	9	24	800
Static Defence Tps	? 12 guns (Div Arty)		24	8	9	40	2,500
Services	-	-	-	-	-	-	300
TOTAL:	24 (+ 12 Fd guns)	48	36	16	18	64	5,600

M.I.3.b.
1st May 1943

APP "B"

LIGHT FLAK TOWERS

German Air Ministry Orders dated March 1942 refer to two types of Flak Tower, one for mounting the single-barrelled 2 cm Flak Gun and the other, moresubstantial for mounting the four-barrelled 2 cm. 3.7 cm. or 5 cm. guns or the 150 cm searchlight. No details of the lighter tower are given, but the heavier type is described as being capable of being taken to pieces and as designed to provide a good and quickly-constructed platform in wooded country for light Flak guns or searchlights; it is of steel construction, the component parts being fastened together by means of nuts and bolts, and may be built up to 8 or 10 metres (26 or 33 ft) in height according to requirements.

These details of what is apparently a standard type of light Flak tower are of interest as showing its mobility and ease of construction; towers of a similar kind, thought to be issued to Light Flak units as required, were referred to in M.I. 14 Periodical A.A.I.S. No. 3, Sec IV (1). As mentioned in the same summary, light Flak towers up to 20 or 25 metres (66 or 82 ft) are also frequently reported from photographic and other sources in many parts of Germany and German-occupied countries.

28 Feb 43

APP "C"

FLAK TOWERS

An anti-aircraft gun site naturally requires a clear field of view in every direction down to as low an angle of sight aspossible. In order to fulfil this requirement in built-up areas the Germans often mount light guns on roof tops, either on bui dings constituting a V.P. or on neighboring buildings. In addition, when circumstances demand it, use is made of special constructions, varying from relatively [illegible] Flak towers to massive concrete buildings.

(1) Light Flak Towers. Light towers up to 20 or 25 metres in height, probably mounting 20 mm. (.79 in) guns, have been reported in many parts of Germany and German-occupied countries. They are found not only in built-up areas, but also in woods in the vicinity of aerodromes and other isolated V.P's such as the DORTMUND-EMS aqueduct, 7 miles North of MUNSTER. An incidental advantage derived from their location amongst trees is that camouflage is facilitated and the usual tell-tale tracks leading to the position cannot be seen from the air.

Detailed constructional particulars which have been taken from one unconfirmed but probably reliable report describing one type of tower erected in Belgium are as follows :-

Four concrete blocks are first set for the foundations. These are usually 2 metres square and vary in depth from 1 to 2 metres. Three or four iron uprights are set in the concrete. The main structure consists of four poles of Norwegian pine, 18-25 metres high, measuring 30-35 cm. in diameter at the bottom and 15-18 cm. at the top. These are placed in the concrete blocks, the iron uprights maintaining them in place. The poles are connected at the sides by cross-pieces which are bolted to them.

Two platforms are placed at the top of the tower. The lower platform is open at the sides and serves as a munitions store. The upper platform is provided with a wall about 7" thick made up of two wooden fences, each about 1" thick, between which is a filling of bricks and sand. The wall is one metre high.

The floor of the platform is constructed as follows:- Two wooden double supports, i.e. one support outside and one inside, are bolted to the main poles. Iron girders, about 15 cm. high are then placed across the supports and fixed to them. The girders carry a set of rafters on which the floor is finally laid.

A moveable type of light tower has also been reported; it is 8 metres high and is constructed of 20 mm. Mannesmann steel tubes. It is thought that these tubes are of standard pattern and can be issued to light Flak units as required.

More heavily constructed towers include provision for accomodation for the gun crews, and another type is said to incorporate in addition a public air-raid shelter at its base.

(2) Reinforced concrete "towers". Many reports have been received recently of the construction of massive armoured "towers", on which are mounted not only light, but also heavy Flak guns. One of these "towers" in the Tiegarten in BERLIN, is described as a six-storeyed steel and concrete building, 50 metres square, 30/35 metres high and with walls 1 metre thick. At each corner is a tower on which is mounted at least one 10.5 cm. gun and a number of light guns; there are also M.G. posts at various elevations. The buildings is said to provide accommodation for a staff of high rank, possibly part of the Air Ministry.

Other reports of Flak towers being constructed on disused factory chimneys cut down to half their size, and on churches whose steeples have been broken off for the purpose, should obviously be discounted.

It is clear, however, that many types of towers have been constructed and improvisation to meet the needs of particular localities is a not unnatural manifestation of the characteristic German thoroughness.

[redacted]

HEADQUARTERS FORCE 343
A.P.O. 758

UNCLASSIFIED

26 May 1943.

GERMAN COAST DEFENSES

The following is a summary of German defense works in FRANCE (NORTH SEA and ATLANTIC Coasts only), BELGIUM and HOLLAND, as at present known, with particular reference to obstacles of all types, personnel shelters, magazines, and emplacements for M.G.'s and light guns. Emplacements for field and coastal guns are also discussed briefly, and a note on Petroleum Warfare and Smoke is added at Section XII.

I. WIRE OBSTACLES.

1. Wire on Beaches.

In general there are two or more continuous belts of wire along all open beaches. They are normally sited between high-water mark and the foot of the dunes. The following types are found:

(a) Knife rests, consisting of a wire entanglement on close-spaced wooden trestles. Recent photographs show that in some cases such fences are made of units with four trestles with a central cross-bar, the units being bound together end to end.

Height of obstacle	about 4 ft.
Width of obstacle	about 4 ft.
Distance between trestles	about 4 - 5 ft.
Length of 4-trestle unit	about 16 - 20 ft.

(b) Apron-fences, single or double, supported on 6 ft. 6 in. L section or screw steel pickets, usually embedded in concrete blocks to a depth of about 18 ins. There is often a single coil of dannert-type wire under the "apron" of the double-apron fence, and sometimes another coil along the top of the fence.

Height of obstacle	4 - 5 ft.
Height of obstacle (with coil on top)	7 - 8 ft.
Width of obstacle	up to 9 ft.

(c) Simple 5 or 6 strand "cattle" fences. Two or three of these fences will always be found together, from 4 to 8 ft. apart. It is probable that the interval between them is in many cases filled in with a wire entanglement. Such fences are also supported on 6 ft. 6 in. L-section or screw steel pickets.

Height of obstacle	4 - 5 ft.

(d) Coiled dannert-type wire, in single, double or triple coil. L-section or screw steel pickets are mostly used. Cases are known, however, of single-coil being supported on short concrete bollards in front of beach pillboxes. Coiled wire fences are most favored along the top of a seawall or promenade, especially at coastal towns.

(e) Trip-wire is often laid in front of the main wire obstacle. It is laid in a diamond pattern between the high-water mark and the first continuous wire fence.

Height of obstacle	4 - 6 in.
Length of Diagonal of diamond-shaped section	4 - 6 ft.
Width of obstacle	12 - 20 ft.

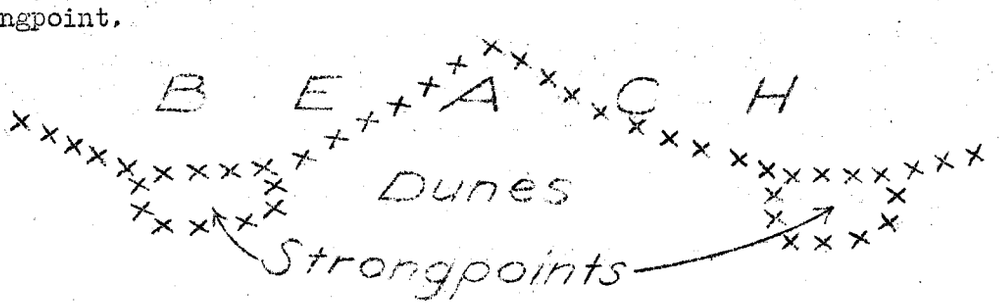
(f) Electrified wire (Starkstromhindernis). This type of obstacle definitely exists and has occasionally been reported by reliable sources

UNCLASSIFIED [redacted]

as in use in BELGIUM and FRANCE. Presumably the outer wire fence is electrified by means of an insulated H.T. cable. Electrification can of course serve both as an obstacle in itself and as a warning device.

(g) Combination of the above types. Any two or more of the above obstacles may be sited parallel to each other. A typical example of recent date consists of trip-wire, immediately behind it a trestle fence, and some 10 to 20 yards further back an apron fence; the total depth of the wired area may be about 30 to 60 yards. In some areas fences erected early in 1942 consisted of two or three belts of wire, often all of the same type, very close to each other and in all constituting an obstacle 25 ft. wide or more. On the sea-front of towns there is generally an apron or trestle fence on the beach and a coiled-wire (or apron) fence on top of the sea-wall.

(h) Siting of wire on beaches. Wire seldom runs in a straight line for any considerable distance along a beach but generally follows a dogleg course. In front of strongpoints the wire generally runs parallel to the shore along the entire length of the strongpoint area, either straight or in short zig-zags. Between strongpoints it juts out from the line of the dunes towards the sea; the length of the arms of one 'dog-leg' may be over 100 yards (see sketch). Thus a considerable stretch of wire can be enfiladed from each strongpoint.



(i) Depth of wire round strongpoints. The distance between the outer and inner wire perimeter of a strongpoint varies according to the topography of the area and the importance of the installation. In some places it is as small as 30 to 60 yards, in others it may be between 70 and 130 yards, or even as much as 200 yards.

(j) Wire below high water mark has been reported. This is certainly not common and is not likely to form a serious obstacle on the ATLANTIC or NORTH SEA Coasts.

(k) Anti-personnel mines and booby-traps may be expected in wire fences and between parallel belts of wire.

2. Wire round defended localities.

Similar to wire on beaches. Individual posts within a position are often separated by wire. In general, the distance from the outer edge of the wire perimeter to the nearest pillboxes or other firing posts is not less than 30 yards.

3. Wire round fortified towns.

In the case of towns provided with perimeter defenses a single or double belt of wire surrounds the entire town and strongpoints are generally surrounded by a double belt of wire. The types used are as above (para. 1). Such wire sometimes follows the line of hedges, ditches, etc., but is more often laid in zig-zags in open country.

4. Wire in gullies and on cliffs.

Gullies, "chimneys", etc., providing a beach exit are barred by a dense entanglement of wire, 20 ft. deep or more. The wire is often continued as a single fence along the cliff-top on either side of such a feature.

5. Wire associated with ditches, minefields, walls, road blocks, and other kinds of obstacle.

See below Sections II, III, IV, V.

6. Types of wire used. Apart from ordinary barbed wire the enemy uses in some areas limited amounts of a special type of wire with a hard steel core which can only be cut by standard British wire-cutters with great difficulty. In addition, P.W. have spoken of the use of wire made of soft non-corrosive metal, rectangular in section and thicker than ordinary wire. The barbs are longer and more closely spaced than usual.

II. MINEFIELDS.

1. The use of anti-personnel and anti-tank mines is now general along the coasts of FRANCE, BELGIUM and HOLLAND. Minefields are usually fenced off and posted with "Danger" signs. There is evidence that these notices are sometimes put up as a decoy in places where there are in fact no mines.

2. Anti-personnel mines.

The only type of mine so far known to be in use is the German S-mine, but standard German types of buried charge are also used especially at beach exits. Minefields of this type are normally found:

(a) Round the perimeter of defended localities. Mines are normally laid in 3 or 4 rows between two parallel belts of wire. As many as 6 rows may be found. The distance between mines in any direction is 9 to 15 ft; so that the depth of the minefield will normally vary between 18 ft. and 75 ft. Scattered mines may also be found under wire fences and outside the wire perimeter along likely lines of approach.

(b) At infantry exits from beaches. Minefields are likely to be found in turf and in dunes in the rear of beaches, also in gullies and on cliff-tops near any infantry exit. Spacing of mines is probably at 9 to 15 ft. intervals of 3 ft. Mines are normally laid in belts of 3 or 4 rows, with a total length of 50 yards or more. It is reasonable to suppose that large minefields in open country include several staggered belts.

(c) Booby traps. There is little doubt that booby traps are used. No details are known. For mined buildings see below Section II, para. 3.

3. Anti-tank mines.

There have been many reports of German T-mines, and recently a few reports of French anti-tank mines with fuze type 36. The German "Brettstückmine" is also used. This consists of a metal case containing 1 Kg. of explosive, with boards fixed above and below it by means of wire. The mine is detonated by pressure on the upper board. Anti-tank mines are normally found.

(a) At A.F.V. exits from beaches. Small groups of mines will be laid on the road or track and also on either side of it. In many cases the mines

will be associated with road blocks (ditches or walls) on the road itself.

(b) In open country in dunes or grassland in rear of beaches. Several large minefields are known to have been laid varying in length between 50 yds and 500 yds. The greatest depth of any minefield known is about 150 yds. The greatest depth of any minefield known is about 150 yds. Anti-tank mines are laid about 5 yds apart in any direction, and normally in belts of 4 rows, each belt at least 50 yds long. A large minefield may consist of several staggered belts. As in the case of anti-personnel minefields, there is usually wire along the front and rear edges of the mined area.

(c) At road junctions and road defiles up to 5 miles inland, especially at approaches to strongpoints and in conjunction with road blocks. Groups of 5 to 8 mines are reported to be used at such positions either in 2 or 3 staggered rows, or in line diagonally across the road. Other mines may be laid in adjacent fields.

(d) Anti-tank minefields of the type described in (b) above are occasionally found in fields and meadows on the landward approaches to strongly defended coast towns.

III. PREPARED DEMOLITIONS.

1. Cratering of Roads.

See below Section IV, para. 9.

2. Mining of Bridges.

Most bridges in coastal areas are prepared for demolition, and charges can be inserted at short notice.

3. Mining of buildings on the sea-front.

It is confirmed that mines or explosive charges have been placed in many houses on the sea-front, especially in North FRANCE and BELGIUM. It is not always clear in particular cases whether this is done (a) in connection with the extensive clearance of buildings in and around defended localities (to clear a field of fire or deprive an attacking enemy of covered approach to the position) or (b) as a form of booby trap.

4. Port Installations.

Quays, jetties and moles at all important ports, including some inland ports, are prepared for demolition. Excavations 6 ft, 6 in. deep and 2 ft. 7 in. in diameter have been made at 11 yard intervals along quays 2 to 3 ft from the edge. On moles, jetties etc., similar excavations are made in 2 or 3 staggered rows across the landward end of the structure (generally about 9 excavations in all). Nothing is known of the charges used. It is probable that in some cases buildings in the port area are also prepared for demolition in the same way and cranes are certainly so. Port demolitions are believed to be controlled electrically from the naval port authority headquarters, which is generally situated in a defended locality in the town.

IV. ROAD BLOCKS.

1. Concrete Walls.

This is the commonest type of road block in all strongly defended areas.

Walls are used to block streets and roads leading from a beach or harbor, streets inside the town at the approaches to key points, and streets and roads on the outskirts of the town on the landward side; also well defined exits from open beaches. Road-blocks of this type together with existing buildings will often form a continuous obstacle along the entire sea-front of a town.

The following types of wall are found:

(a) Continuous walls at right angles to the line of the street, across roadway and sidewalks. The thickness of the wall may be as little as 6 ft but is more often between 8 ft and 11 ft. The height varies between 6 ft and 8 ft 6 in. The top of the wall is either flat or curved. The foundations may be about 6 ft 6 in. below ground level. Details of reinforcement are not known, but it does not appear to be very strong. Reinforcement bars often project along the top of the wall and are used to support a wire obstacle. The face of the wall may be vertical or may have an overhang. The back of the wall is generally sloping and may have a fire-step for an anti-tank gun built into it.

(b) V-shaped walls are now being built across beach exits, especially on open beaches outside towns. They are V-shaped in plan with the point of the V to the front. Dimensions of this type of wall are similar to those described in para. (a) above.

(c) Walls with gaps. In the interior and on the landward side of towns there is generally a gap in the wall sufficient for one vehicle to pass at a time. This also applies to one or two roads leading from the sea-front in each town, which the enemy require for their own use. In road-blocks of this kind the two sections of wall may be sited:

(i) Directly opposite each other so that the gap can be closed by girders, rails or gates fitted into sockets in the end of each section (see also para. 6 below); or

(ii) "en chicane", i.e. one section on one side of the road, so that any vehicle passing through must slow down and zig-zag. The distance between the two walls may be from 16 ft. upwards.

NOTE: (1) There is often a ditch in front of continuous walls of types (a) and (b) above, or a tank-trap in the form of a pit covered with planks or netting.

(2) In BRITTANY wall road blocks are often made of stone (principally granite).

2. Anti-tank ditches are found blocking roads, especially along coast roads and country roads. There may be two ditches within a few yds of each other. At present a gap in the ditch for single traffic is left.

Width of ditch	10 - 12 ft.
Depth of ditch ?	6 - 8 ft.

The ditch is generally revetted (at the back) with concrete and sometimes entirely lined with concrete. Steel rails projecting about 3 ft are often embedded in the concrete.

3. Dragons' teeth are used to block streets and exits from quays, also well-defined beach exits, such as beach ramps. Known instances of this type of obstacle consist of 3 or 4 staggered rows, 6 to 8 ft apart. The distance

between teeth in one row is also about 6 to 8 ft. All dragons' teeth so far seen on air photographs appear to be regular pyramids between 2 ft. 6 in. and 3 ft. high.

4. Concrete pillars are used in the same way as dragons' teeth, but are also found across hollows in dunes which might provide an exit for vehicles. They are used in one, two and possibly sometimes in three rows, not always staggered. In dune country they are generally on a forward slope near a crest. The pillars are sometimes rectangular about 3 ft. in side and 4 ft. high, and sometimes cylindrical, about 3 to 4 ft. in diameter and 4 ft. high.

5. Rail Tetrahedra ("Pyramids") made of steel rails or L-section irons are used to block beach exits, ramps, beach promenades and streets leading from the beach. They consist of three or four pieces of rail in the form of a cone with the ends embedded in concrete and bolted together at the top. There appear to be two types:

(i) 3 ft. 3 in. high, with the ends bolted together.

(ii) 4 ft. 6 in. high, bolted 3 ft. 3 in. above ground-level, with the ends projecting above the join.

6. Vertical rails are occasionally used in two or three rows to form blocks across streets or well-defined exits on open beaches. The rails are about 4 ft. high and are embedded in concrete blocks.

7. Wire blocks (timber and iron gates, chevaux de frise, knife rests).

Road blocks consisting of a wire entanglement or fence at each side of the road with the gap between closed by movable gates of various types, were common in 1942 but are steadily becoming rarer as the use of concrete walls and other types of obstacle described above increases. They may all be still in use, however, to close gaps in concrete road-blocks (see para. 1(c) above). Belgian Elements "C" are also used for this purpose (see below Section V, para. 3 (iv)).

8. Brick walls are of two kinds:

(a) Perimeter walls surr ounding the harbor area at a few ports. These are about 10 ft. high and not more than 3 ft. thick. There are loopholes for small arms at intervals along the wall.

(b) Street-blocks in towns, also about 10 ft. high and 3 ft. thick. These are probably now being replaced to a large extent by concrete walls, and are not likely to be found at beach exits.

9. Cratering of Roads.

Preparation of roads for cratering has been reliably reported, and in a very few cases beach roads have already been blocked in this way. Nothing is known of the charges used.

V. CONTINUOUS ANTI-TANK OBSTACLES (walls, ditches, scaffolding, inundations).

1. Concrete Anti-tank walls are found along the rear edge of beaches especially on the edge of a sea-wall. They are also found across the estuaries of small streams, with a gap in the middle to allow the water to flow out. They are similar in structure and dimensions to wall road-blocks (see above Section IV, para. 1(a)). In addition to the type with vertical

face and rounded top, however, occasionally a type is found with vertical face curving outwards to overhang the beach; in this case the top of the wall is flat.

NOTE: (a) Where possible an existing sea-wall is adapted to form an anti-tank wall, by clearing away sand and gravel in front of it so as to increase the height of the wall and make an additional ditch obstacle. On many beache this work requires constant renewal, owing to the effect of storms and tides.

(b) Tank traps, in the form of camouflaged pits, are often placed in the vicinity of anti-tank walls. The Germans consider this a very useful form of obstacle.

(c) On the sea-front of towns it is more common to build concrete anti-tank walls across streets leading from the beaches and to brick up the front of buildings between the streets or build a brick wall against the front of the buildings, than to build a continuous wall along the seaward edge of the promenade.

(d) Pillboxes may be built into a continuous anti-tank wall at intervals along its length, and anti-tank guns may be mounted on firesteps built into the back of the wall. There is generally wire along the top of the wall.

2. Continuous anti-tank ditches are of two main types:

(a) Round strongly defended ports. Ditches of this type, found principally in HOLLAND but also at a few places in FRANCE and BELGIUM, are all water-obstacles. In general the width of the ditch varies between 20 and 40 ft.; the depth is unknown, but has been reported to be as much as 15 - 20 ft. Most ditches follow a zig-zag course with single stretches some hundreds of yards long. Near ST MALO there is a recently constructed canal some 300 ft wide which is of course a water-obstacle; the main function of this ambitious work is however unknown. North of FLUSHING there are two ditches, roughly parallel to each other and about two miles apart. There is generally a thin belt of wire on the outside of the ditch. Behind the ditch there are strongpoints and isolated pillboxes at intervals, generally sited to enfilade the zig-zag arms of the ditch; these defended localities are also protected by wire, which may be sited as much as 50 yds Back from the ditch.

(b) In front of or round defended localities. Such ditches are usually about 9 to 12 ft wide and possibly about 8 ft deep. On sandy beaches the ditch is generally revetted or lined with concrete or brick. They are commonly found:

(i) Completely surrounding strongpoints containing R.D.F. or other wireless installations. There is generally a thin belt of wire some 10 to 20 yards in front of the ditch, and a thicker belt some 50 yds behind it.

(ii) In front of beach strongpoints of all types (infantry, C.D. artillery, A.A. artillery) at the foot of the dunes and behind the beach wire.

(iii) Along the sea-front of towns, especially in front of an anti-tank wall or sea-wall. A ditch of this kind is sometimes a hollow scooped out in the beach some 10 or 20 yards in front of the wall, without revetment; or it may be immediately in front of the wall.

3. Steel Scaffolding.

The nearest approach to the British steel scaffolding obstacle used by the Germans is the Belgian or French "Elements C". The Belgian "Elements C" consist of sections of steel framework, 10 ft long and 10 ft high with bracing to the rear; the sections are moved into line on rollers and then bolted together to form a continuous line, fixed but with a small degree of elasticity. The French "Elements C" consist of smaller units 2 ft 6 in. long and 6 ft 6 in. high with bracing to the front. Thus, whereas the Belgian type presents a vertical face to the enemy, the French type presents a sloping face, the object being apparently to make the tank run up the obstacle and expose its underside to anti-tank fire. Obstacles of these two types are found:

(i) Along open beaches, occasionally in stretches over a mile long, sometimes across the estuaries of small streams. The obstacle either follows a straight line along the top of the beach, or, if sited some distance in front of the dunes on a broad beach, runs in a zigzag course, as in the case of beach wire (see above Section I, para. 1 (h)).

(ii) In front of and at flank approaches to defended localities.

(iii) Along quays and jetties (generally as a stop-gap while concrete walls or other street blocks are being built).

(iv) In single elements of the Belgian type as movable barriers for streets, bridges and possibly also railway lines (see above Section IV, para. 6).

4. Inundations.

In areas where there are small rivers or streams with narrow estuaries and a fairly wide flat valley behind, the practice of damming up the estuary, usually at a bridge, and controlling the flow of water by some sort of sluice is fairly common. In this way areas up to three miles inland and up to one mile broad can be flooded in emergency so as to form a barrier to troops and vehicles.

VI. PERSONNEL SHELTERS AND MAGAZINES.

Concrete shelters and magazines are installed at all strongly defended localities. In less important sectors of the coast, dugouts, sandbagged shelters and brick or concrete shelters without reinforcement are still found. Where it is impossible to build shelters completely underground the portion above ground-level is covered with earth. Generally to a depth of 3 ft. Access is by steps or sloping corridor, revetted with brick or concrete. Moreover, shelters and magazines are generally connected with firing positions by a trench, revetted with brick or concrete and often covered in; these trenches are linked up to provide a continuous communication system throughout the strongpoint. All shelters are of standard types. The strength of reinforcement varies with the type, and is described below where known. The entrances to all known shelters are zig-zag and are protected by fire from one or more loopholes. In addition, most types may have one or two Tobruk-type cupolas built into the roof for small arms or signals purposes. (See below Section VIII B.(a)).

The following types are known (measurements given of length, width and height are exterior measurements):

(i) Type 1a (magazine, 1 compartment)

Length	27 ft.
Width	19 ft. 6 in.
Thickness of wall	3 ft. or more.
Thickness of roof	3 ft. or more.

(ii) Type 2a (magazine, 2 compartments)

Length	34 ft. 6 in.
Width	31 ft.
Thickness of wall	6 ft. 6 in. (possibly only 4'6")
Thickness of roof	6 ft. 6 in. (possibly only 4'6")

(iii) Type 501 (personnel shelter, 1 compartment)

Length	40 ft. approx.
Width	31 ft. 3 in.
Thickness of wall	6 ft. 6 in.
Thickness of roof	6 ft. 6 in.

The reinforcement is probably similar to that used in type 608 shelter. There are probably 8 rows of reinforcement in the walls. There is also good evidence that steel girders or rails are used to reinforce the roof.

(iv) Type 502 (personnel shelter, 2 compartments).

Length	47 ft. 6 in.
Width	31 ft. 3 in.
Thickness of wall	6 ft. 6 in.
Thickness of roof	6 ft. 6 in.

For reinforcement see above - type 501.

(v) Type V.F.7. (generally magazine, also used for kitchens, first aid posts, etc.)

Length	36 ft.
Width	33 ft.
Thickness of wall	?
Thickness of roof	?

NOTE: There is also a Type V.F.7.B. which probably is essentially the same as the V.F.7.

(vi) Type V.F.2. This is a small shelter, mostly underground but with the front face exposed. It is probable that it is in fact a pillbox with a loophole in front.

(vii) Type 608 (Battalion, or Brigade or equivalent HQ. shelter, 8 compartments).

Length	50 ft.
Width	45 ft. 3 in.
Height (Incl floor)	16 ft. 6 in.
Thickness of wall	6 ft. 6 in.
Thickness of roof	6 ft. 6 in.

Reinforcement of the roof consists of spotwelded mats (similar to our B.R.C. fabric) in 7 in. squares; the mats are 7 in. apart. The diameter of the rods used is about 15 mm. The walls are more lightly reinforced; possibly they have only 7 mats.

(viii) Type 618 (Divisional (?) or equivalent HQ. shelter: 18 (?)

compartments.)
Length ?
Width ?
Thickness of wall ? 6 ft. 6 in.
Thickness of roof ? 6 ft. 6 in.

(ix) Type 629 (shelter for anti-tank gun and detachment, 2 compartments.
Length 36 ft. 4 in.
Width 35 ft. 9 in.
Height (incl. floor) 5.1 m.
Thickness of wall 6 ft. 6 in.
Thickness of roof 6 ft. 6 in.
Total amount of concrete used 675 cu. meters.

(x) Type 117A (Divisional (?) or equivalent HQ. shelter: 17 (?) compartments).
Length 70 ft. 10 in.
Width 46 ft. 6 in.
Thickness of wall ? 6 ft. 6 in.
Thickness of roof ? 6 ft. 6 in.
NOTE: This is presumably a variant of a Type 117, one possible example of which is known.

(xi) Type "L" (i.e. Leitstand). (Coastal Battery Observation and Command Post: 9 compartments)
Maximum length 67 ft. 6 in.
Maximum width 55 ft.
Forward Observation Room
Length 15 ft.
Width 22 ft. 6 in.
Rear Bay
Length 12 ft. 6 in.
Width 17 ft. 6 in.
Thickness of wall 6 ft. 6 in.
Thickness of roof 6 ft. 6 in. (?)

(xii) Another type of Battery Observation and Command Post similar to type "L" is known. This type is probably obsolescent but still exists in some areas.

(xiii) One headquarters shelter measuring approximately 190 ft. by 57 ft. has been seen on air photographs. This type is otherwise unknown.

(xiv) Sentry-boxes. Reinforced concrete sentry-boxes with steel doors are in use. They are cylindrical in shape, pointed at the top. There are probably observation slits in the walls. It is possible that other types exist; a hexagonal type, with observation slits in all six walls has been reported. Cupolas or Tobruk posts on the roofs of shelters have also the function of sentry-posts.

VII. COMBINED SHELTERS AND GUN-EMPLACEMENTS.

The following types of shelter with a gun emplacement on the roof are known:

(a) T-shelters, resembling a T in plan. These are partly underground;

the part above ground is covered with earth or camouflaged with netting. On the roof over the "leg" of the T is a circular emplacement for a light coastal or A.A. gun. Inside the shelter there are two separate compartments for the gun crew and for ammunition.

(b) Light A.A. Gun-emplacements, consisting of a rectangular shelter partly underground, with an octagonal gun emplacement on the roof. The part of the shelter above ground is heaped with earth to the level of the parapet of the gun-emplacement. There is an inside stairway from the crew's quarters to the roof.

Length	14 ft. 6 in.
Width	13 ft.
Height	19 ft. 6 in.
Height above ground level	13 ft.
Height of parapet on roof	2 ft. 7½ in.
Thickness of wall	3 ft. 3 in.
Thickness of roof	4 ft. 6 in. (?)

(c) Heavy A.A. gun emplacements, consisting of a raised concrete structure subsequently heaped up with earth at the sides, have been seen on air photographs. The interior layout is not known but presumably there is a shelter for the crew under the gun-platform as in type (b) above.

VIII. PILLBOXES.

A. With firing slits in walls.

In general open emplacements for M.G.s and light weapons are preferred to pillboxes with loopholes of the ordinary type. For the Tobruk-type M.G. post and armored M.G. posts, which are much used, see below. Nevertheless pillboxes are found especially in the following positions:

(1) Built on or into the sea-wall at towns.
(2) Built into Anti-tank walls.
(3) Inside towns, inland at road junctions and at the approaches to key points (e.g. post offices, port installations). These are often of unreinforced concrete, or even of brick.
(4) On open beaches covering well-defined beach exits.

NOTE: Tank traps, in the form of pits covered with planks or netting are believed to be common at the approaches to pillboxes, both in front and in rear.

A considerable variety of types is used. The following are standard:

(a) For 1 heavy M.G. and 6 men)
) Details unknown.
(b) For 2 heavy M.G.s and 12 men)

(c) For 2 heavy M.G.s mounted in the end-walls. This is a type much used in the SIEGFRIED line, and certainly found sometimes on the coast of the Occupied countries, but certainly NOT common there. The pillbox is built into the side of a hill and the M.G.s cover the slopes on either flank.

(d) For Anti-tank guns (or heavy M.G.s), a type with a very wide firing slit along the whole of the front wall.

(e) For Anti-tank gun and heavy M.G. coaxially mounted. The mounting

is a tank mounting (usually with a 4.7 cm. anti-tank gun) fitted into the front wall of the pillbox.

(f) "Mushroom"-post (Pilz-stand) for one man with an automatic weapon. Little is known of this type, except that it is much used, especially along roads, and that it consists of a steel cylinder with a mushroom-like turret with wide firing slits on top. It is probably about 6 ft. 6 in. high and the cylindrical part has a diameter of about 3 ft.

B. With aperture or turret in roof.

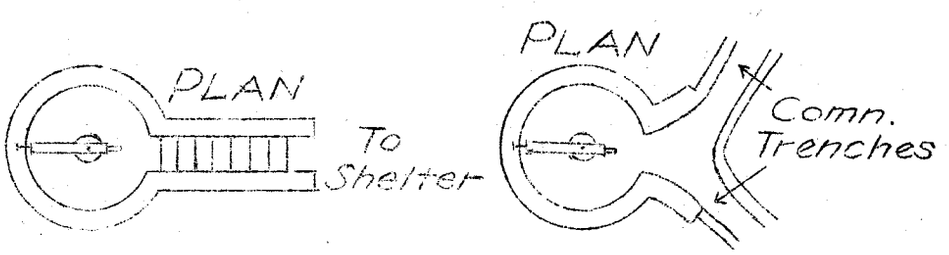
(a) A type of M.G. post much favored by the Germans in coastal strongpoints is the so-called "Tobruk emplacement" (Tobruk-stellung), probably developed from a similar British type used at TOBRUK. This consists of an underground shelter connected by steps or a short passage with a hexagonal chamber, the top of which is at ground level. In the roof of this chamber is a circular aperture, 2 ft. 7½ in. in diameter, in which an M.G. is mounted. The primary use of the Tobruk post is for A.A. defense. On the sea-front of towns the shelter is sometimes the fortified cellar of a house with an underground passage leading under the promenade to the M.G. post on the edge of the sea wall.

NOTE: Tobruk emplacements may also be built into the roof of practically any type of shelter, especially headquarter shelters.

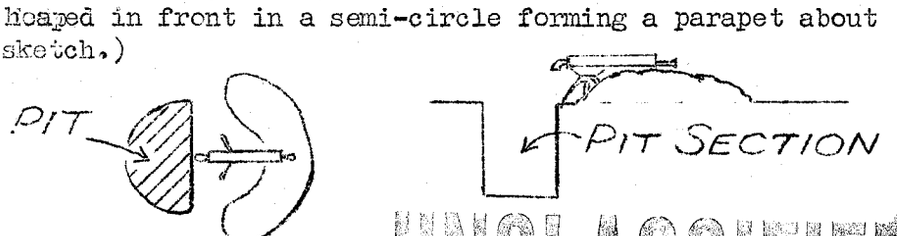
(b) The armored M.G. post (Betonstellung mit Panzerkuppel) is similar in design to the Tobruk-type, but instead of an aperture has a tank turret (generally from an old French tank) or similar cupola mounted in the roof. The armament may be an anti-tank gun (generally 4.7 cm.) or M.G., or both coaxially mounted. The turret traverses through 360°. This type of position is also much favored in coastal positions. Tank turrets, like Tobruk-posts, are also found mounted on the edge of a sea wall or on the end of a harbor mole, access to the shelter underneath being either by an underground passage from the cellar of a nearby house or by a manhole near the turret.

IX. OPEN SHELTERS, EMPLACEMENTS FOR M.G.'s ANTI-TANK GUNS AND TANKS.

(a) Open circular or horse-shoe shaped M.G. posts about 4 ft. 6 in. below ground level, and about 8 to 10 ft in diameter. The floor is of concrete, the revetting and parapet wall generally of brick. In the center is a concrete-block on which the M.G. is mounted. Access is from the rear by an open corridor (probably stepped) or underground passage. (See sketch).



(b) Dug-in M.G. posts are known, but probably exist only as temporary positions till fortified posts are available, or in lightly defended areas. They consist of a semi-circular pit of 7 ft. diameter and about 4 ft. 6 in. deep. The spoil is heaped in front in a semi-circle forming a parapet about 10 in. high. (See sketch.)



(c) Open circular hexagonal anti-tank gun emplacements are common at all strongpoints and at road junctions and bridges. They may be from 10 to 15 ft. in diameter. They are generally connected by an underground passage, which may be roofed over, with a shelter or other covered position.

(d) "Table"-emplacements for anti-tank guns exist at a few places. They consist of a square pit covered with a concrete slab supported on four short legs (See sketch). Dimensions are not known.

(e) "Tank-bays" are constructed, especially near bridges and road-junctions but also on beaches, as firing positions for tanks in a static defense role. They usually consist of three walls, with an opening in rear for the tank to move in and out. The parapet of the wall is high enough to protect the chassis of the tank, i.e. about 4 ft. Most of the tanks used in this way are old French equipment.

X. GUN EMPLACEMENTS, SEARCHLIGHT POSITIONS.

(a) Field gun emplacements for guns and gun-howitzers of 4 in. caliber are generally circular and about 25 to 30 ft. interior diameter. They take the form of circular pits about 3 ft. deep, the spoil being used to form an earthen parapet which may be as much as 12 ft. thick. There is an opening in the parapet in rear of the gun.

(b) Medium and heavy howitzer emplacements are similar in design. For 12 in. hows. they are about 30 ft in diameter, for 15 cm. hows. as much as 44 ft. Some static batteries with medium and heavy howitzers possibly have concrete gun-platforms.

(c) Army coast gun emplacements for 3 in., 4 in., and 6 in. guns (nearly always field equipment on wheels) have invariably a circular platform of strongly reinforced concrete and a surrounding concrete or brick parapet wall. The gun platform is 3 to 4 ft below ground level; the immediate supply of ammunition is kept in niches in the parapet wall. The commonest type of mounting, especially for 6 in. guns, consists of a steel frame pivoting on a raised concrete block in the center of the emplacement. The wheels of the gun-carriage are attached to the steel frame, and the end of the trail runs on a rail round the circumference of the emplacement. For guns of lighter caliber, an ordinary platform mounting is also common. There are generally communication trenches, lined with concrete or brick, leading to the underground personnel shelter and magazine in rear of the gun.

Interior diameter of 3 in. gun emplacement - 18 - 20 ft.
Interior diameter of 4 in. gun emplacement - 27 - 30 ft.
Interior diameter of 6 in. gun emplacement - 40 - 45 ft.

(d) Naval coast guns in the case of medium and heavy guns have generally turret-mountings and an underground magazine immediately in rear of

the emplacement. A few heavy batteries on the CHANNEL Coast have additional concrete protection for the gun-turrets in the form of casemates with walls and roof at least 10 ft thick. Light naval batteries often have field equipment, in which case the emplacements resemble those of the Army coast artillery.

(e) Railway guns are usually mounted on turntables, mostly of 75 ft. or 95 ft. diameter. A few batteries of lighter caliber have positions on spurs.

(f) Heavy A.A. gun emplacements are normally square, the internal measurement being 25 ft x 25 ft. Fortified positions on the coast have 4 ft. high parapet walls of concrete; older positions have earth parapets. (See also above Section VII(a)). Heavy A.A. guns, especially those which have a coast defense role, may have a steel shield or even, in a few cases, a complete turret.

(g) Light A.A. emplacements are also square with 10 to 15 ft. side according to the caliber of the gun. (See also above Section VII(b)). Light guns are sometimes mounted on wooden towers up to 65 ft. high, or on movable towers of tubular steel 26 ft. high.

(h) Searchlights on beaches are normally mounted in circular emplacements of concrete or brick with a low parapet wall. Searchlights of the 24 in. type have emplacements of about 15 ft. diameter. Larger searchlights used by the A.A. artillery are in 24 ft. emplacements, generally with an earth parapet, if they are sited back from the coast.

XI. ARTILLERY OBSERVATION POSTS.

As a general rule all O.P.'s are situated within a defended locality.

1. For concrete battery O.P. and Command Post see above Section VI (xi) and (xii).

2. "Fortress" observation posts are sometimes in the form of a revolving steel cupola mounted on the roof of an underground shelter. This type contains a Barr and Stroud type horizontal base range-finder.

3. Some O.P.'s are on towers or in the upper stories of civilian buildings. Field artillery O.P.'s are frequently at the top of the nearest church tower, especially in the LOW COUNTRIES.

XII. PETROLEUM WARFARE AND SMOKE.

(a) Petroleum Warfare.

It is considered probable that petroleum warfare devices are being incorporated at present into the general defense scheme in highly defended areas. Infantry positions, especially on the sea-front at towns are equipped with flame-throwers of the ordinary types. There is evidence that flame projectors are being installed in concrete pillboxes. The length of the flame emitted is not known.

Flame barrage tests are reported to have been carried out on one beach. Floats filled with petroleum were ignited electrically and a sheet of flame produced on the water. It is NOT known whether the tests were considered successful enough for the device to be adopted. To be effective, such a barrage would require large quantities of petrol and ideal climatic conditions.

(b) Smoke.

Smoke generators similar to those used for the anti-aircraft defense of some ports have recently been reported along one section of the coast. The projectors consist of round metal containers, 70 cms. high and 40 to 50 cms. in diameter, installed at 50 yard intervals along the coast road. On top of the container there is a single filler cap and a spout ending in a diffuser rose. The smoke generated from the liquid in the containers is stated to be odorless and harmless though possessing a slightly irritant property.

(NOTE: The above is reproduced from AFHQ document, dated 28 March 1943.)

GAZETTEER OF SICILY

G.S.G.S. 4164

1 / 100,000

Barrafranca	268/ 1863	Brecoliti, Case	276/ 6522
Barrafello, Punta di	249/ 3657	Bresciana	265/ 9190
Barriera	270/ 0386	Briga	254/ 2843
Barriera (Catania)	270/ 9482	Brolo	252/ 7251
Barriera	270/ 9694	Brolo, Scoglio di	252/ 7152
Bartolo, Di	270/ 9481	Bronte	261/ 7210
Basico	253/ 9341	Bruca	257/ 9428
Basiluzzo Island	244/ 9607	Brucoli	274/ 0554
Bastione	253/ 0654	Bucalo	262/ 2129
Bastonaca	273/ 5025	Buccheri	273/ 7436
Batia	253/ 0542	Buccheri Station	273/ 7439
Batticana River	258/ 3409	Bue Marino, Seno	248/ 8850
Bauso	253/ 2460	Bufu, Cala	248/ 8144
Belhemi, Cape	249/ 2135	Burgio	266/ 3789
Belice River, Mouth of	265/ 9987	Burgio	277/ 9393
Belice Destro River	258/ 1914	Busacca, Casa	275/ 3615
Belice Sinistro River	258/ 1908	Buscemi	273/ 7832
Bellia Station	268/ 3467	Busecchio	258/ 1113
Belliscala	277/ 9001	Buseto Palizzolo	248/ 8636
Belmonte Mezzagno	249/ 4538	Butera	272/ 1643
Belpasso	270/ 8687	Butera Station	272/ 1438
Belpasso River	270/ 8782	Buzza, Torrente	252/ 4236
Belvedere (Syracuse)	274/ 0733		
Berdia	257/ 3714		
Berretta, Cala	248/ 9445	Caccamo	259/ 7125
Bertuccia	270/ 9162	Caderini, Punta	274/ 1328
Bertuccio, Casa	270/ 9180	Caffarelli, Casa	268/ 0095
Besaro, Ponte	268/ 0670	Calabernardo	277/ 0108
Bettavietra, Torrente	266/ 2878	Calagero, Casa	266/ 2180
Bianca, Cala	248/ 9940	Calamonaci	266/ 3781
Bianca, Punta	271/ 6944	Calana	262/ 0701
Biancavilla	269/ 7694	Calarastone	272/ 2727
Bianco, Cape	266/ 3565	Calascibetta	268/ 2488
Bichigi	261/ 6906	Calatabiano	262/ 0614
Bicocca Station	270/ 9274	CALATAFIMI	257/ 0024
Biddiemi, Cava	276/ 4902	Calatafimi Station	257/ 9927
Biddusa, Ponte	257/ 8312	Calatubo, Castello di	249/ 1135
Bifarera Halt	258/ 4221	Calava, Cape	252/ 8055
Bisacquino	258/ 3501	Calcarelli	260/ 0211
Biscari	273/ 4426	Calderari	268/ 3185
Biscari Station	275/ 3822	Caldura (Cefalu)	251/ 0237
Bisciane, Punta	257/ 6402	Caldura, Torre	251/ 0337
Bisciano	257/ 6929	Callari	273/ 6747
Bittatemi, Casi	272/ 2329	Caltagirone	273/ 4648
*Biviere Lagoon	272/ 2924	CALTANISSETTA	268/ 0576
Biviere, Ponte di	249/ 3939	Caltanissetta-Xirbi Station	268/ 0582
Bivona	266/ 4991	Caltavuturo	259/ 9013
Bivona	272/ 2726	Calvaroso	253/ 2759
Blufi	260/ 0505	Calvaruso	254/ 2759
Boccadifalco	249/ 3846	Camaro	254/ 3255
Bolognetta	259/ 5229	Camaro	254/ 3255
Bompensiere	267/ 8075	Camastra	249/ 4045
Bompietro	260/ 0905	Camastra	271/ 8050
Bonfornello Station	259/ 8330	Camemi	276/ 5102
Bongiardo	262/ 0099	Camerina, Punta della	275/ 3808
Bonico, Punta	274/ 0356	Cametrice	268/ 1869
Bordonaro	254/ 3154	Cammarata	258/ 3407
Borgetto	249/ 2439	Cammarata	267/ 6693
Borgo (Catania)	270/ 9681	Cammarata Station	267/ 7095
Borgo Annunziata (Trapani)	248/ 7336	Campobello di Licata	271/ 9051
Borgo Milletari	260/ 2199	Campobello di Mazara	265/ 8993
Borgonovo, Ponte	261/ 5512	Camp Felice di Fitalia	259/ 5414
Borgo Regalmirri	259/ 7500	Campofelice di Roccella	259/ 9032
Borrania	257/ 7820	Campofiorito	258/ 3605
Borrello	270/ 8789	Campofranco	267/ 7579
Bottaro Island	244/ 9604	Campofranco Station	267/ 7279
Botte Catalano	262/ 1828	Campolato, Cape	274/ 0756
Botteghelle	262/ 2332	Campona	265/ 8590
Bottoga, Bivio	270/ 8581	Camporeale	258/ 2022
Bove,--Cala del	248/ 8747	Camporotondo Etneo	270/ 8885
Bove Marino, Punta	277/ 9995	Canalicchio	270/ 9682
Braccetto, Contrada	276/ 4202	Canarrina, Casa	266/ 0984
Braccetto, Punta	276/ 4101	Cancelliere	262/ 9800
Brancaccio	249/ 4644	CANICATTI	267/ 8662
Branco Piccolo, Punta	275/ 3906	Canicattini Bagni	274/ 9526
*Biviere	272/ 3025		

Canigliari Ferraro	262/ 0832
Cannarella	271/ 9243
Canne, Fondaco delle	269/ 4773
Canneto (Lipari Is.)	244/ 8488
Canneto	251/ 3434
Cannistra	253/ 0849
Cannizzaro	270/ 0083
Cantera Lighthouse	274/ 0546
Cantera, Ponte	261/ 7012
Cantera, Torrente	274/ 0346
Capaci	249/ 3352
Capizzi	261/ 4216
Capo, Torre del	276/ 0718
Capodarso, Ponte	268/ 1277
Capo d' Orlando	252/ 6451
Cappella, Madonna della	259/ 7431
Cappelliero, Bosco del	258/ 4724
Capri Leone	252/ 6443
Caraso	253/ 8348
Carbo River	266/ 1184
Carcaci	269/ 6996
Carda	253/ 1954
Cardillo	249/ 3953
Carico	270/ 0194
Carini	249/ 2948
Carlentini	274/ 9053
Carmine	253/ 1858
Carminelo	270/ 0086
Carmito	270/ 8863
Caronia	251/ 3836
Caronia Marina	251/ 3837
Carrabba	262/ 0506
Cartiera	261/ 7007
Casale, Il	253/ 9640
Casalgismondo	269/ 4865
Casalotto	254/ 3355
Casalvecchio Siculo	262/ 1529
Case Nuove	253/ 8849
Case Nuove	277/ 0720
Case Rosse, Le	249/ 4452
Caselle	262/ 9703
Casino	253/ 1757
Cassaro	273/ 8334
Cassaro-Ferla Station	274/ 8534
Cassibile	276/ 0620
Castanea delle Furie	254/ 3363
Castel di Lucio	260/ 2621
Castelbuono Station	251/ 0935
Castelbuono	260/ 0825
Casteldaccia	250/ 5839
Casteldaccia Station	250/ 5940
Castellammare di Golfo	248/ 0237
Castellammare, Gulf of	248/ 0440
Castellana	269/ 7860
Castellana Sicula	260/ 0309
Castellazzo, Punta	277/ 8889
Castello	262/ 0710
Castelluccio	276/ 8317
Castelluccio Lighthouse (Syracuse)	274/ 1628
Castelluzza, Punta	274/ 0057
Casteltermini	267/ 6982
Castelvetrano	257/ 9498
Castiglione di Sicilia	262/ 9920
Castrofilippo	267/ 7561
Castrofilippo Station	267/ 8063
Castronovo di Sicilia	259/ 6597
Castronovo Station	259/ 6898
Castroreale	253/ 0645
Castroreale Station	253/ 9947
Catalimita	253/ 0643
CATANIA	270/ 9679
Catania, Plain of	270/ 8770
Cataratti	254/ 3256
Catarinicchia	265/ 9991
Catenanuova	269/ 6186
Cattafi	253/ 1254
Cattolica Eraclea	266/ 4772
Causo Halt	259/ 7620
Cava, La	270/ 9593
Cavalcatore Halt	268/ 3789
Cavaliere	253/ 2558
Cavallari	253/ 2557
Cavallaro	262/ 0719
Ceccazzo	270/ 9995
Cefala Diana	259/ 5224
Cefalu	251/ 0038
Celso	250/ 5940
Censiti Halt	258/ 3510
Centineo	253/ 0449
Centuripe	269/ 6591
Cerami	261/ 4512
Cerda Junction	259/ 8029
Cerda Station	259/ 8128
Cesaro	261/ 6316
Chiaramonte Gulf	273/ 6326
Chiarisi	260/ 0805
Chiavelli	249/ 4342
Chibbo Nuovo	268/ 9691
Chiesa, La	262/ 0332
Chiesette	262/ 0608
Chinisia River	257/ 6921
Chiusa Sclafani	258/ 3697
Chiuse, Le	270/ 0094
Ciaculli	249/ 4742
Cianciana	266/ 5080
Ciane River	274/ 1123
Ciaolino	268/ 0493
Cibali	270/ 9380
Cicala	270/ 9784
Cicero	252/ 8252
Cicirella	272/ 3523
Ciclovi Island	270/ 0385
Ciminna	259/ 6122
Cinisi	249/ 2251
Cirico	274/ 8753
Ciriga, Punta	277/ 8788
Civi	262/ 0510
Civita	262/ 9898
Civita	270/ 0192
Cocuzzola	250/ 9436
Cocuzzola	250/ 9436
Cofano, Gulf of	248/ 8649
Cofano, Monte	248/ 8846
Collesano	259/ 9325
Colombaia Island (Trapani)	248/ 6835
Colonia Marina	249/ 4355
Colonne, Torre	250/ 6337
Comini Station	267/ 6969
Comiso	276/ 5416
Comitini	267/ 6867
Comunelli, Torrente	272/ 1136
Condro	253/ 1653
Conduri	253/ 2251
Consolazione	270/ 9989
Contarini, Casa	271/ 5255
Contessa Entellina	258/ 2803
Contesse	254/ 3352
Corleone	258/ 3913
Corleone Station (Palermo)	249/ 4545
Corrado, Passo	277/ 8993
Correnti Island	277/ 9683

Mazzarra S. Andrea	253/ 9943
Mazzo di Sciacca, Cala	248/ 9513
Megarese, Porto (Augusta)	274/ 0649
Megna, Passo di (Salina Is.)	244/ 7697
Melia	262/ 1123
Melilli	274/ 9942
Mena	262/ 2434
Menfi	266/ 0989
Meri	253/ 0952
Messana, Rocca	272/ 9955
MESSINA	254/ 3555
Messina, Straits of	254/
Messinese, Punta	253/ 0664
Mezzo, Punta di	276/ 4200
Mezzoiuso Station	259/ 5322
Milazzo	253/ 0959
Milazzo, Capo di	253/ 0764
Milena	267/ 7774
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